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OLDEST AGRICULTURAL AND LIVE STOCK JOURNAL IN THE MISSISSIPPI VALLEY

Sixty-Seventh Year.

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1880-1890 THE UNION SHOWCASE MAGAZINE

1890-1900 THE UNION SHOWCASE

IN THE POULTRY YARD

THE INDIAN RUNNER DUCK IS A GREAT BIRD.

Some Points of Interest About These Great Egg Producers.

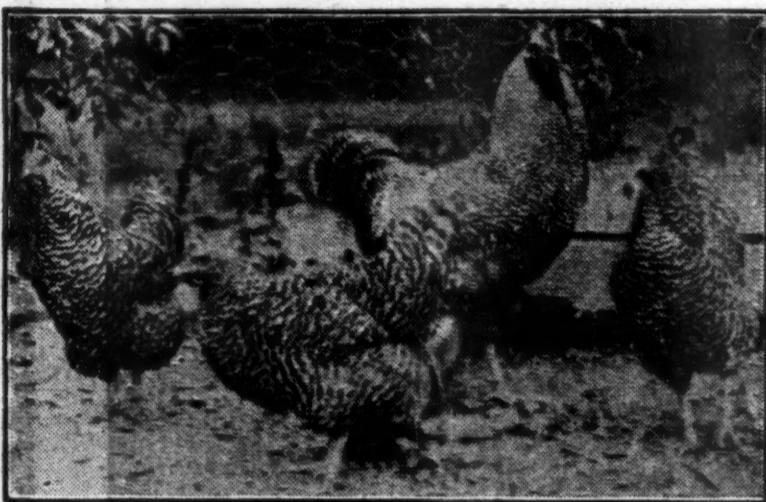
There are three standard varieties of Indian Runner ducks, viz., the English Standard, American Standard and White. The first are dark fawn and white, with darker markings on the fawn color, and the drakes have green and bronze on head and tail, and are known as the "Penciled Indian Runners." The second are light fawn and white, ducks and drakes alike, except the fawn color in the drake is a little darker. The White, as the name indicates, are pure white. There are pure-bred in each line, the type and general characteristics of the fowls being the same, differing only in color. They all have the erect, alert, racy appearance typical of this breed, with slender necks, and the graceful outlines, so much admired. As to their many fine qualities, such as quick growth, early



vor, which fried, stewed or roasted. The Indian Runner ducks are becoming more popular every day, and as they are really fine they are holding their own when given a fair trial. —Mrs. J. C. McDonald, in *Progressive Farmer*.

SILAGE FOR HENS.

Silage, warmed with boiling water when necessary, is a good green feed for the fowls. No other green stuff need be provided. Then skimmilk in abundance is a cheap substitute for beef scraps. The most important thing



A GOOD START.

maturity and great egg production, they are all alike, the only choice being the color, and that is a matter of individual taste. The White ones are a new variety, scarce, and, of course, more expensive than the others. For hatching the eggs, chicken hens are used or an incubator, as these ducks seldom want to sit, my experience with quite a number developing but two so inclined. Their time is all given to laying and it is conceded by all that they are the greatest layers on earth. As to the quality of the eggs they are the best, while in size they are unequalled.

There has been a great demand for these ducks in the last few years, and as the supply was rather limited and prices were high, unscrupulous dealers sold ducks that were mixed, the little old puddle duck, or just any kind they could get, thus filling the market with fowls that are worthless and causing disappointment and dissatisfaction to the owners on account of mongrel ducks, poor layers and green eggs, the eggs from well-bred birds being pure white. In such a case, if one cares to keep ducks, the only thing he can do is to dispose of the mongrels and start again, as the good ones are the kind to keep.

Ducks are creatures of habit, quick to learn their feeding and sleeping places, and are not hard to control, all staying together. They bear confinement well and are easily kept, a half gallon of bran three times daily with a little corn each time being sufficient for 12 ducks, the mash being put in a trough to avoid waste.

There has been but one objection to ducks as table fowls, and that is the picking; but it is very easy when done the right way, which is to wrap the fowl after killing in a heavy cloth and pour boiling water over it, turning it about in the vessel for the heat to reach all parts; when properly done the feathers and down are dry and come off together, leaving beautifully cleaned fowl with flesh sweet, makes a dish fit to set before a king. Juicy and tender, and a delicious fla-

is the scratching floor, on which the hens can hunt for their corn, oats and wheat, warming their feet, increasing their circulation and keeping the flesh down to the point where they can lay an egg now and then. A wet mash and oysters shells make up what appears to be a ration well enough balanced to cause 60 per cent of the hens to lay through the winter.

FACTS ABOUT GAPES.

Chicks raised on old ground, or low swampy places are peculiarly liable to gapes. If it is not possible to put chicks on fresh ground, plenty of lime should be used to purify old yards and discourage the gape worm. Cleaning up old yards and cleaning and disinfecting houses and coops, and keeping clean everything the chicks come in contact with helps to keep away gapes —the plague that gives poultry raisers so much trouble every spring.

The chick that is debilitated by lice or lack of warmth and dryness cannot compete in endurance with the chick that has been kept free from vermin and given the care needed to make it strong and vigorous. Keep the chicks growing from the start; don't chill them by turning loose in the morning before the grass dries; don't crowd them; see they get enough air at night and the gape worm will not give much trouble. The chicks will be strong enough to cough up these torments that get in the windpipe and live upon their blood.

Remove the gape worms and the chick usually recovers when an experienced hand does the work. But if one does not know just how to go about the operation he is apt to kill the chick. If you are skillful in removing the worms lose no time in treating the infected ones. Chicks soon become stunted by the gapes; prompt treatment is the only thing that will prevent a setback in their growth. And chicks that get their growth checked in any way are not the best kind of chickens to spend time and feed upon.

Some advise using a little turpentine in the drinking water to prevent gapes. We get better results using turpentine in the feed. A scant tea-spoonful of turpentine to a quart of feed is about right. A little copperas in the drinking water and onions in the feed will help to prevent gapes. —Fannie M. Wood, in *Inland Farmer*.

WASH EGGS FOR HATCHING.

Don't think for a moment that it won't do any harm to neglect washing the eggs when the broody hen breaks one. When an egg is broken, its contents coat the shell of the others and prevent the very necessary passing of the air through them, besides poisoning the air in the nest. The embryo chick must have pure air either under the hen or in the incubator.

IMPROVING POULTRY.

There are three practical ways to improve poultry. One is to buy a mating or two of well-bred birds and use their eggs for hatching. This is an expeditious, comparatively inexpensive and satisfactory method. If it will cost too much money, buy two or three settings of eggs from some good, reputable breeder. Mark the chickens hatched and start next year's flock with these.

This method is a little slow, but of-

ten very successful.

The third and most inexpensive method is one which every farmer can practice if he will. It has been used time and again, and when common sense is exercised, it is decidedly satisfactory. Simply cull out your flock every season, saving only the choicer birds of uniform color and quality. Exchange male birds regularly with some one who is raising the same kind of poultry. The results will surprise you.

KEEPING FOWLS TAME.

There is a good and a bad feature connected with having the fowls tame. It is good from the fact that tame fowls are contented, and contented hens are layers. Wild and excitable hens are, as a rule, poor layers. Tame fowls may be picked up without scaring the rest of the flock. On the other hand, tame fowls are allowed to eat out of the hand, receive extra feed on account of their cuteness, and the consequence is they become overfat. Have the fowls tame, but do not overindulge them.

HOPPER FEEDING.

Poultry feeding has been much improved and simplified by the introduction of the hopper method. The old-fashioned way of preparing and mixing a wet mash is done away with on account of its tedious and needless expense of time and labor. The hopper is filled with a variety of ground grains, and placed where it is accessible to the fowls at all times. With this arrangement the hens need never go to roost without sufficient food.



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CREAM of the DAIRY NEWS

HOW TO PRODUCE CLEAN MILK.

Impure milk will be the result if the utmost precautions are not taken in handling it, and impure milk necessarily means that its products will also be impure and have very poor keeping qualities. It should be borne in mind that all contamination depends upon some form of bacteria, which are present everywhere and which multiply very rapidly under certain conditions and temperatures. Milk is absolutely free from bacteria at the moment it is secreted by the healthy udder, says Farmer's Guide.

Taking this to be true and that contamination depends upon some form of bacterial growth, it is at once apparent that the precautions necessary are to prevent, as much as possible, the bacteria coming in contact with the milk and to make the conditions for their growth and multiplication as unfavorable as possible. It is impossible, of course, to wholly avoid bacteria coming in contact with the milk, but they may be generally reduced in numbers by simple precautions that may be adopted on any farm.

It may at once be stated that an increase in cleanliness will reduce this bacterial contamination and in order to understand this it is necessary to consider the point to which attention should be especially directed. One of the largest sources of bacterial contamination is the dirt which accumulates on the cow. This being true it naturally follows that an efficient means of reducing the number of bacteria in milk is to clean the cow. She should be groomed as frequently as possible and in no case should dirt be allowed to accumulate on her skin. The long hairs on the end of the tail are particularly liable to become contaminated and this should be especially guarded. It is sometimes a custom, although regarded as cruel by many, to cut off the long hairs on the tail and around the teats, thus reducing greatly the chance of filth collecting on her skin. The greater the attention to cleanliness in this respect the more satisfactory the results.

The dairy barn, and particularly where the milking is done, should be kept in as clean a condition as possible. The habit of removing the cows to a separate milking room is one which is undoubtedly very useful in reducing the chance of bacterial contamination.

It is desirable that the place where all manure and barnyard refuse is placed be removed as far as possible from the milking stall and no stagnant water should be allowed near the barn. Manure is not only a source of bacteria, but is a great breeding place for flies, which are a great nuisance. One fly falling into the milk pail has been known to be capable of introducing 250,000 bacteria in milk.

Especial care should be taken in regard to the condition of those who do the milking or have anything to do with handling the milk. Special clothing should be worn during the milking period. That the milker should carefully wash his hands before entering upon the duty of milking is taken as a matter of course.

The milk utensils should be thoroughly scrubbed with hot water containing washing powder and should then be scalded in boiling water, and, without rinsing in cold water, should be turned upside down and allowed to stand in the sun and air until needed for use, and in no case should they be wiped with a rag after scalding.

As bacterial growth and multiplication depend largely upon temperature it is necessary that this temperature be avoided as much as possible. The temperature at which the maximum growth occurs seems to be near 70 degrees F., and many grow best even at 95 degrees. It is quite evident that these temperatures should not be retained in the milk after the milk has been drawn from the cow, but it should be reduced immediately to a temperature which will not favor



this growth. This can be done by means of placing the milk can in water and stirring the milk so that it may come in contact with the surface of the can as much as possible, and if ice can be used in the water which surrounds the can it will greatly facilitate the cooling.

Many dairymen think it necessary to aerate the milk to get rid of the so-called animal odors. The milk has a certain odor which is removed by the aeration, but if contaminations are reduced to the minimum there will be little necessity for aeration and animal odors would be very slight. But under any circumstances,

it is the purpose to make of this show the annual "round up" of the herds that have shown in the various circuits of this enormous country where judges of national and international reputation may pass upon them and send the cattle to their home farms for the season in such accredited form as will establish forever a national roll of merit for the winners. Let no man who is desirous of breeding on lines best calculated to improve and maintain the standing of his breed be at all timid about leading his cattle into the national ring, as comparison is the only safe and sure method to arrive at certain knowledge of whether you are drifting; and you can never accomplish anything by staying at home.

THE END OF THE COW.

Once more that bulwark of civilization and friend of humanity, the cow, is threatened with the loss of her job. The story of synthetic milk comes



A FINE PAIR.

whether the milk is aerated or not, immediate cooling is an important factor in the keeping power of the product.

NATIONAL DAIRY SHOW 1914

In making the first announcement of the 1914 National Dairy Show, we will advise that the dates of the show are October 22d to October 31st inclusive, and then briefly outline a few matters of interest to the cattle breeders.

The Holstein Association is putting up special purses amounting to \$1,500 for this great breed of cattle. The Jersey Cattle Club at their meeting May 6th decided to increase their special prizes to \$1,000 for their favorites. The Guernsey Club, taking similar action at their meeting May 16th, raised specials for their breed up to \$1,000. This makes for these three breeds of cattle a possible winning in cash of nearly \$9,000; justifiable expense money for the cost of maintaining a show herd but from the view point of what the show yard does for a breed, small enough compared by the number of breeders devoting time and cattle to the upbuilding of their favorites with those who get the benefit of the good done at fairs and shows for a breed. Apart, however, from the cash money received for this most valuable advertising work, the breeders who do come to the national with cattle of sufficient quality and condition to enable them to carry home with them the ribbons awarded at this the closing show of the year, carry away with them that which has more lasting value and more real immediate value than all of the money awarded.

again, this time with the assurance that it is not only a possibility but a commercial reality. The soy bean is the basis of the new product which is to wipe out our dairy industry and give the dear people a product equal to milk and free from any of the dangers charged to that maligned product. We suggest that those who own cows should not be in a rude hurry to get rid of them because of its roseate promises. Such things as synthetic milk, meat, eggs and other foods have been heard of in the past, and still humanity has kept right on digesting the products of the cow, the hog and the hen. It will be found that nature's laboratory for the preparation of these foods is better and more economical than any pile of bricks and mortar and metal and glass that man can erect. Some day we confidently expect a scientist to arise and propose to hypnotize humanity into thinking that one of its regular meals has been consumed each day so as to make the food supply go around. Talking of cows reminds us of the government figures on the cost of production. As the official valuation of heifers and cows over 15 1/2 months old is considerably below what it cost to produce one a year old we see what a tremendous loss the whole cow-raising industry is to our nation. Clearly it ought to be squelched or squashed, or what-

ever the correct official term may be. And this reminds us that a government lecturer shows how a certain dairy composed of cows worth about \$47 apiece gave milk worth \$121 apiece in a year. That variety of cows may be available to the Department of Agriculture but they are mighty scarce in this territory. They must have been bought at a fire or bankrupt sale, as they could not have been raised for any such figure, according to the official estimates. And that reminds us—but perhaps we have said too much already.—National Stockman and Farmer.

SKIMMILK CALF \$3.45.

An experiment at the University of Illinois shows that \$3.45 worth of milk will grow a calf. The sale value of the milk fed the calves used in the experiment was as follows: 150 pounds of whole milk at \$1.50 per 100, \$2.25; 400 pounds of skimmilk at 30 cents per 100, \$1.20; total, \$3.45.

"And those prices of milk are liberal," says the station bulletin, "especially as they are paid at the farm, and no money or labor is expended in hauling the milk to market. It is not so expensive to grow a calf as the dairymen have thought. The grain and hay consumed by heifers of high quality will give much better returns than the same feed fed to cows."

The forest service has been requested to co-operate with the port authorities of Coos Bay, Washington, in planting to control shifting sand dunes.

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Cattle

SAVE THE MANURE.

No good farmer, especially if he has been reading the bulletins of the Industrial Congress, the small farm book or the agricultural papers and bulletins can have any doubts as to the value of the manure from his livestock. Simply to impress it more strongly let us repeat that the manure from every well fed cow upon the farm, if properly taken care of and applied to the soil, is worth 8 cents for each day's supply while that from every work animal is worth 10 cents. Then if we have five head of cattle upon our farm each day they are scattering over the pastures and lot about 40 cents worth of fertilizer. If we realize that each day there was being scattered over our fields 40 cents we would be pretty apt to take some steps towards picking it up and saving it. Some times we partly realize this and during the winter months make some attempt towards saving the manure from our live stock, but when spring comes we get too busy. Besides, we think it is too late to apply the manure

it or neglect it altogether. Saving manure is subject to two serious objections. First the additional handling adds very much to its cost and secondly, without special preparation manure so saved nearly always undergoes a loss that detracts very greatly from its value. You can't afford to lose sight of 10 cents each day for every head of work stock or cattle that you have upon your farm, so get busy every day in the year and save it. — Bulletin No. 7, Texas Industrial Congress.

A DUAL PURPOSE BREED.

There is no special dairy temperament in the ordinary meaning of the word temperament; nor is there a special beef temperament. A hustling Hereford on a Western ranch is of the same temperament as a hustling Holstein in an Eastern farmer's barn, eating all that is before her and lowing for more. Furthermore, a breed of cattle that is now used and has been purposely used in the production of both milk and meat products for years with marked success and profit along both lines must be a dual-purpose breed. The term dual-purpose is of recent origin. I find no definition of

Yorkshire, 1,010 pounds; Durham or Shorthorn, 1,140 pounds. As reported, the Friesian "appeared to be in very poor condition, but they fattened rapidly when dry."

A German residing in Utica, N. Y., where he was engaged in butchering once said to me, "I have butchered thousands of Friesian cattle in Europe. They make the best beef in the world." In his enthusiasm on discovering that I handled this breed he may have been somewhat extravagant in his expression, although he was regarded by his neighbors as a man whose statements were reliable.

I scarcely need quote Professor Roberts. Before the New York State Dairymen's association he calmly said: "I ate of the beef (Friesian) for three weeks and of the English beef for two and while (the former was) not so fat as the Shorthorn it was to my taste superior."

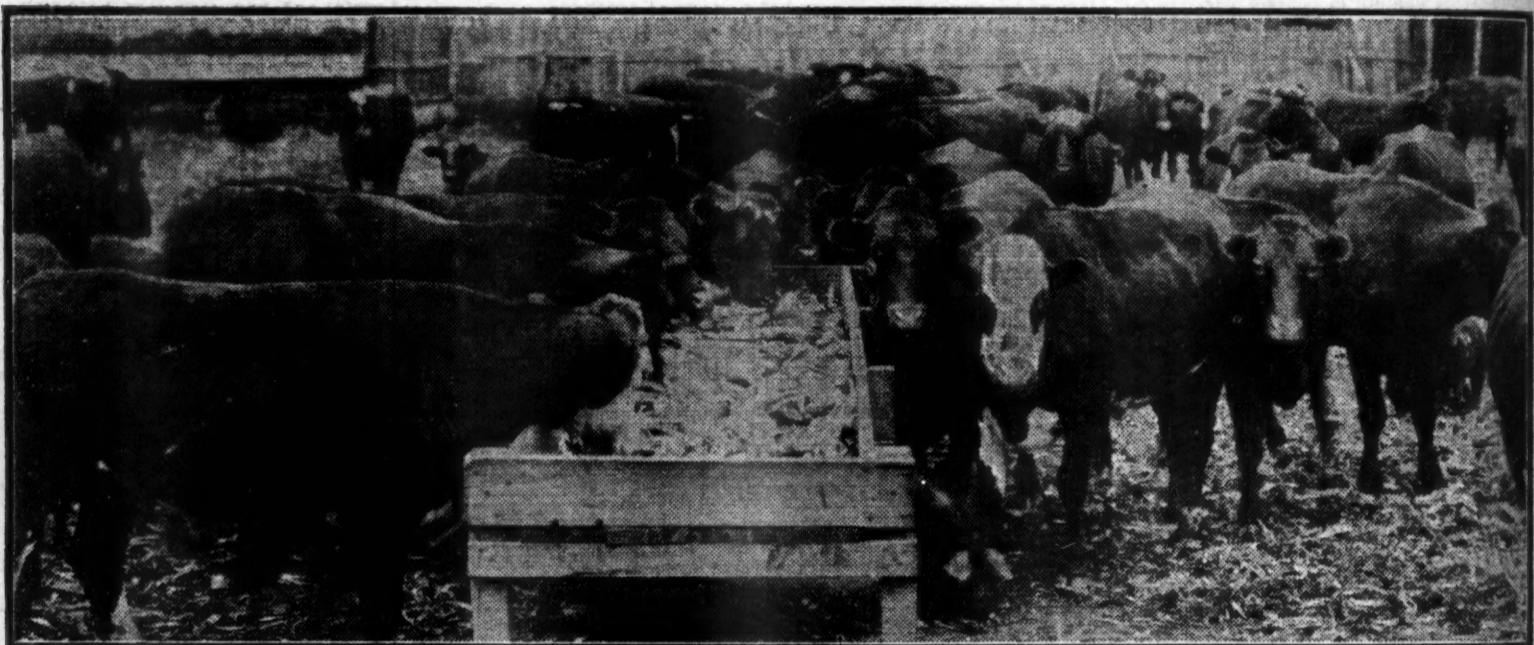
It will appear from the above statements that there is no incompatibility in the production of dairy products and of veal and beef by one and the same breed. Quality of the products in either case depends somewhat on the food consumed in the process of production. Nor can large and profitable production either of milk or beef be

It appears that a somewhat similar condition, though not to such an extent, takes place in the animal when the beef functions are in abeyance. Under the latter condition many cows will consume, as it were, the fat on their intestines and in their muscles and the very muscles themselves in order to produce milk. — S. Hoxie, in "Holstein-Friesian Register."

COW, MILKER, YIELD.

A heavy yielding Holstein-Friesian cow freshened early in December and was milked by man No. 1. After several weeks he went away for a vacation. Man No. 2 took charge of the milking. The cow responded and gave as much as 81.4 pounds of milk a day. Her highest day previous to this was 70 pounds.

Man No. 1 returned after a short time and again took charge of the milking. The cow began to decline in production at once and fell as low as 64.2 pounds of milk a day. After six days man No. 2 took charge of the milking, and the cow began to make an increase in the flow of milk. Evidently No. 1 could not get the cow to respond to his milking as well as man No. 2, who is a Swiss boy still on the job.



READY FOR MARKET.

to our land as the crops have already started. It is true that manure should be applied to land some time in advance of the growing crop to get the maximum results, but that is no reason why we should neglect it. If the growing crop does not reap the full benefit future crops will and manure is never so safe as when upon the ground it is destined to benefit. Every day it is kept upon the surface, unless extraordinary care is taken with it, it is losing. But some say it will not do to apply manure to the growing crop. It will burn it and injure instead of benefitting it. It is true that this is very often the effect of applying fresh manure to growing crops, but the reason of this is because the manure was not properly applied. Usually it is applied with a shovel in which case it is almost impossible to distribute it evenly. As a consequence it remains in lumps and the roots of plants accumulating in these lumps are injured when dry weather comes. This is the same objection to applying any manure when it is not equally distributed throughout the soil. If the manure is completely pulverized, however and scattered evenly over the soil such ill effects will not be apparent unless excessive quantities are used.

When equally distributed it is always safe and beneficial to distribute manure at the rate of from three to five loads per acre at any stage of the crop's growth, provided the crop is not injured by the teams or wagons distributing it. When so used, however, it is well to distribute, say about 100 pounds of acid phosphate for each load of manure. But even if we do not want to put the manure upon the growing crop there is always some land upon a farm upon which it can safely be distributed and we had much better do this than try to save

it, yet intelligently used in accord with the general meaning of compound words in the English language it applies correctly to the Friesian breed of North Holland, the Holstein-Friesian breed of America.

The evidences of this fact are overwhelming, although in this country the breed is mainly used for the production of dairy products and veal. My nearest neighbor is a dealer in veal calves. Referring to this fact he recently said to me, "The Holstein for veal has got all other breeds beaten to a frazzle." A like conclusion may be drawn from a series of tests made on the estate of the King of Wurtenburg from 1832 to 1865. Thirteen breeds, including the Swiss, Polled Yorkshire, Durham or Shorthorn, and Friesian, were employed in these tests. The average weights of calves of these breeds slaughtered at four weeks old were: Friesian, 94 pounds; Swiss, 94 pounds; Polled Yorkshire, 85 pounds; Durham, 80 pounds. The Friesian was preferred "for its smaller bone and its readiness to fatten." This readiness to fatten is evidently due to the extreme constitutional vigor of the breed, not to any peculiar temperament.

Several years ago I fattened a four-year-old bull of this breed that had become useless for service. The butcher to whom I sold him told me he had never killed a better beef. I purchased several pounds of it and found it to be well marbled with white fat, clear and sweet and of excellent flavor. By the way, this butcher was a Welshman, who had been butchered in London and in other large cities.

Full-aged cows during their period of milking when weighed on the Wurtenburg estates, to which I have before referred averaged: Friesian, 1,200 pounds; Swiss, 1,225 pounds; Polled

brought about by illiberal feeding. The full energy and activity of the milking functions in one and of the flesh producing functions in the other case must be sustained.

No one has the right to expect an extremely large or profitable yield of both beef and dairy products from the same animal at one and the same time. It may be that those who deny the impracticability of dual-purpose cattle do expect this dual production simultaneously, but it is an absurdity to do so. The machinery for milk production is widely separate in most of its features from that of beef production. The former is periodically dormant—dead so far as production is concerned.

CALVES AND GROWTH.

Keep the young calves growing. Give them a little bran every day. A mixture of oats and corn makes good feed, especially when clover and alfalfa hay is available for rough feed.

If you intend to make first-class cows from your heifers, feed well while they are carrying their first calf, and don't neglect to handle them. Show them that you are their friend.

Get them to like you, and then they will respond when you come around with the milk-pail. There is more in the handling of a young heifer than many farmers are aware of.

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Let me tell you how you can get a dandy Shetland Pony, Carriage, Harness and Saddle—all FREE! My plan is your chance. Write TODAY. A post card will do. Just say "I WANT BILLY," give your name and address, and I'll send you a FREE GIFT to start you off. Tell the Pony Editor that you want "Billy."

Horticulture

GROWING CAULIFLOWER.

The requirements for growing cauliflower are rich soil, an ample supply of moisture and thorough cultivation during the growing period. A lack of moisture during the hot summer months is responsible for most of the failures with cauliflower, as it will seldom do well during hot, dry weather. This drawback can be overcome largely, however, by making the plantings to head either before or after the hot summer months. Then during long dry spells the plants should be watered freely. A location where the soil is low and moist will always be of great advantage in the growing of cauliflower, says American Cultivator.

For the early crop the seed should have been started in the house or in a hotbed. When the second leaves are well started, transplant the plants into more roomy boxes where they can stand three inches apart each way. Provide them with plenty of fresh air and sunshine in order to encourage the forming of strong stock plants.

Plow the soil freely and get it into a fine, loose condition, then set the plants out in the garden as soon as the weather will permit. Set them about 20 inches apart each way. Keep the soil about them fine and loose at all times during the growing period in order that it may restrain all the moisture present. Water frequently if the weather turns off dry.

For the late crop of cauliflower sow the seed thinly in a seed bed the last of May, and when the plants attain a good size set out into the garden the same as for the early crop. If the soil is not sufficiently moist at the time of transplanting, the plants should be kept well watered until they have made a good start. This point of supplying moisture freely to cauliflower plants is a vital one and very essential for success.

When the heads begin to form, break the leaves or tie them back with twine over the heads in order to protect them from the direct rays of the sun.

TWO SERIOUS BEAN DISEASES.

Anthracnose and Blight Caused a Garden and Field Loss in Michigan
Estimated at \$2,000,000 or 20 per cent of the Crop in 1913.

The blight and anthracnose of garden and field beans caused a loss in Michigan alone estimated at \$2,000,000 or 20 per cent of the crop of 1913. This state does not stand alone for similar conditions obtain in other bean-growing sections. It is becoming more difficult each year to secure bean seed free from one or both of these diseases. In view of these facts, it is highly important that the diseases be more thoroughly recognized and that the best available methods of control, some of which must be begun in the early cultivation of the plants, be understood and put into practice.

Cause of Bean Anthracnose.

Bean anthracnose is caused by a fungus which attacks the stems, leaves, pods and seeds of the plants. On the stems and leaf veins it causes elongated, sunken, dark-red cankers, sometimes killing young plants and often producing deformed and yellowed leaves. Rounded or irregular sunken spots with a slightly raised rim are produced on the pods. The spots usually have pink centers surrounded by a darker reddish border.

In severe cases the pods may be entirely covered by the sores and produce no seed. In other cases the fungus penetrates the pods and enters the seed, causing dark, sunken specks or spots. In these diseased seed as well as in the refuse from diseased plants the fungus is propagated from season to season.

Cause of Bean Blight.

The bean blight differs from anthracnose in several ways. It is caused by a bacterial organism. On the leaves it produces irregular, diseased areas which at first have a water-soaked appearance, later dry out and become brown and brittle. The entire margin or half of a leaflet is often affected. On the pods the disease starts as slightly raised and watery

pustules, which later enlarge, become of irregular shape and amber color with yellow centers. Infected seed show yellow diseased blotches or are entirely yellowed and shriveled.

Nature of Loss.

Both diseases cause serious losses in the snap bean trade. Diseased pods are unmarketable and must be sorted out. If a few slightly spotted pods are packed in a basket, the disease may spread during shipment, causing additional loss and necessitating extra sorting before the beans can be sold to the consumer. In the seed bean trade all beans must be hand-picked to get out the discolored diseased seeds. From 15 to 30 per cent of diseased beans are frequently sorted out, involving heavy loss of beans as well as the cost of sorting. Diseased beans used for seed usually give a poor stand and result in the production of a badly diseased crop.

Control Measures.

It has been conclusively demonstrated that anthracnose can be avoided by a careful system of seed selection. Save seed from perfectly healthy pods, selected with great care for entire absence of spotting. Carefully keep them away from diseased pods, shell by hand to avoid reinfection, and plant on clean land. Pull and burn any plants showing disease. By planting the seed thus secured enough disease-free seed can be secured to plant the whole crop.

In the absence of such disease-free seed (1) secure for planting, seed having the least possible amount of disease, as shown by actual examination; (2) all seed should be hand-picked and no seed showing the slightest discoloration should be planted; (3) practice crop rotation, never plant beans on land where the same crop grew the previous season; (4) do not cultivate or walk through the bean field or pick beans while wet with dew or rain. If the disease is present it is then easily spread from one part of the field to another.

The bean blight is more difficult to control than anthracnose, but the same methods will give the best results at present available.

SOME USES FOR DANDELIONS.

We ordinarily look upon the dandelion as a very troublesome pest and spend much time and energy in keeping our lawns free from it. In European countries, however, this plant is grown as a vegetable and is highly esteemed.

The tender leaves of the dandelion when washed in cold water and served with a salad dressing as lettuce, make a delectable salad. They may also be used as boiled greens. When so used, the roots, and any flower buds which have formed should be removed, and the leaves thoroughly washed. They are then boiled and seasoned as other greens.

A very good wine can also be made from dandelions. Take four quarts of blossoms and pour one gallon of water over them. Let stand for three days, add the grated rind of three oranges and one lemon and boil 15 minutes. Place three pounds of sugar in a vessel and strain the hot decoction over it, stirring the sugar until it melts. Let set until almost cool and then add one yeast cake. Cover and let stand for 10 days, after which strain again, settle, cork, and put away in a dark place. —R. A. McGinnity, Colorado Agricultural College.

CORN SMUT.

The question is frequently asked: Can corn smut be controlled by treating the seed? It cannot. For the most part, corn smut spores rest over the winter in the soil or in the manure pile. Infection of the corn plant may take place at any time during its life, although usually not until it has attained a height of two or three feet. Furthermore, infection may take place in any part of the plant where there is fresh growing tissue.

Corn that should never be planted on soil that grew a smutty crop the previous year. A one-year rotation is usually sufficient to destroy a large number of smut spores resting over in the soil. Remove and burn the smutty masses on the young plants. Corn smut spores pass through the alimentary canal of stock without having their germinating power destroyed.

This probably explains the fact that fields heavily manured often suffer more from corn smut than those lightly manured or not manured at all. The spores, however, do not live long in the manure. Hence old manure is better than fresh to spread on a corn field. It is known that some varieties of corn are more susceptible to smut than others and it is also very probable that a variety that is not acclimated is more subject to smut than one well acclimated.—W. W. Robbins, Colorado Agricultural College.

will be aided by such co-operation. In 1901 Porto Rico shipped \$46 worth of beeswax out of the country. This was shipped to the United States. In 1913 she shipped out \$59,721 worth to the United States and \$9,520 worth to foreign countries. From June, 1913, to January, 1914, beeswax was exported to the United States from Porto Rico valued at \$5,620. For the whole of 1913 the export of beeswax to the United States was worth only \$6,425, which shows the rapid increase of exports just during the past year.

The Apiary

OPPORTUNITIES FOR BEE KEEPERS IN PORTO RICO.

Because the beekeeping industry has grown from almost nothing to an export trade of \$100,000, in five years and because there seem to be unusual opportunities for its further development, the United States Department of Agriculture has just published a bulletin on "Porto Rican Beekeeping."

Beekeeping had not developed in Porto Rico to any extent before the American occupation in 1898, but since that event, the building of good roads have enabled more individuals to introduce modern methods profitably. Beekeeping in Porto Rico should, however, be done on a large scale, according to the Department's investigators because of the distance from the market. It therefore seems advisable to encourage professional beekeepers rather than those who keep small apiaries of about half a dozen colonies because the latter type is so small and the beekeepers usually sell their product for too little a price and are not interested in a financial way.

Porto Rico is growing commercially in a surprising manner, and while honey can never equal coffee and sugar in importance, it is a product worthy of attention, in view of its recent rapid development and the fact that bees multiply with amazing rapidity.

The distance of Porto Rico from the nearest great American markets is one reason why the beekeeper of Porto Rico must take up the business on an extensive scale to make it profitable.

In the western part of the United States, a long distance from the supply manufacturer the industry is usually in the hands of extensive beekeepers and is in a much more satisfactory condition than it is in the eastern United States where certain diseases are eliminating the careless disinterested beekeepers. The capital of Porto Rico is 1,380 miles from New York and 1,565 miles from New Orleans. The industry as developed today is chiefly at the extreme western end of the island.

Apiaries Popular in Porto Rico.

Fortunately for the future of the industry the apiaries now established in Porto Rico are usually large and most of the bee keepers are planning to increase both their size and their number. Amateur beekeepers, so common in the east of the United States are conspicuous by their absence. Most of the present beekeepers are Porto Rican, only a few Americans being interested so far.

The fact that most of the beekeepers have had but two or three years' experience, makes it all the more remarkable that they have prospered as well as they have. The corporation plan of beekeeping in which the individual keepers unite to form companies has not yet taken hold in Porto Rico, but will very probably be undertaken after the keepers have had more experience. The problem of long distance for shipping supplies and crops

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PROPAGATING GAME BIRDS.

Editor Colman's Rural World: Recent articles have lead me to write you concerning the matter of propagating pheasants and other game birds. Every law for protection of game should make it lawful to keep in captivity any bird for the purpose of rearing and propagating birds of that kind and that any person who hatches birds in captivity may sell, ship or otherwise dispose of them. England long ago saw the wisdom of such laws with the result that 24 firms known as the farmer associates were reported by the shooting committee of the Field Sports Guild, whose secretary is Alex Morrison, Mill street, Bedford, England, to have had in the season of 1913-14 in their raising pens 15,000 pheasant hens, no account being made of males or of several hundred other English firms and persons engaged in raising pheasants. The English people are outnumbered by England's domestic pheasants, but in Canada and the United States, laws have been enacted that discourage raising game birds. In New York the law provides any person may rear and sell game birds, but makes it a criminal offense to ship into New York such birds. Let the reader judge, is that law calculated to increase the number of birds in New York. Indiana allows rearing and selling pheasants, but forbids express and railroad companies to receive them for shipment. This law practically prohibits effort to increase the number of birds. I recently visited the game farm of Helen Bartlett at Casopolis, Mich., where she is successfully rearing Ringneck, Golden, Reaves and Amherst pheasants, pea fowl and other wild birds. She is encouraging increase of these birds by selling settings of eggs at reasonable prices and with each sale gives complete instructions for raising them, for the sole purpose of increasing the birds. Hundreds of her birds go to game wardens, owners of estates and inhabitants of uncultivated districts to be turned loose to multiply and afford pleasure to sportsmen and nature lovers. Why should not the law encourage the efforts of such persons? The Bob White can be reared just as easily as the pheasant. All that is needed is legal encouragement.

JOHN W. TALBOT.
South Bend, Ind.

BUFORD, ARK., NOTES.

Editor Rural World: The first half of the month of March was an ideal time for getting in the oat crop. The ground was in splendid shape for plowing. And it pulverized and worked down like an ash bank. My cattle went to the range on the 15th and it looked as though winter was over. But four days later, on arising from our slumbers, we looked out on seven inches of snow. The cattle had all come home the night before the storm and didn't leave any more until near the last of the month. The snow stayed on the north slopes almost a week, and the month ended with rain and cool, cloudy weather. April was cool, wet and cloudy all the way through. And a large part of the corn crop was not planted until May. All crops are backward for the time of year. And while we have had but very little rain for three weeks, crops of all kinds are making rapid growth, and it looks as though we would have a bountiful harvest. The first crop to be harvested here is alfalfa, and lucky was the farmer who had alfalfa to mow and haul to his empty barn. My first sowing of alfalfa here in Arkansas was a failure, and I came to the conclusion that it was no use to sow alfalfa on land that had been hard cropped for years, unless it was first made fertile by the application of barnyard fertilizer. So I commenced on a limited scale by preparing an acre of land. Sowed 12 pounds of seed on that acre one year ago last fall, cut a good crop a year ago, and after the fall rains set in there was another good crop on the ground. But the October snow storm came before I got ready to mow and my alfalfa went down and there was nothing to do but leave the fallen growth for a winter covering. I suppose it was all the better for this year my alfalfa was far ahead of any other field in the neighbor-

hood. I cut it the 19th of May and the next day we hauled six loads into the barn from that acre, that I honestly believe would have weighed three tons. After taking off the first crop, we got the harrow teeth sharpened and harrowed and crossed harrowed and then went in with the rake and raked up and hauled out everything that was loose, and with seasonable rains I expect the second cutting will be as good as the first. While the average Ozark farmer may never grow much grain, if he will only grow the hay and the cattle, it seems as though he ought to make a great success financially, with the outside range to graze and fatten the cattle on during the growing season. All that is needed is hay to carry them through the winter. I believe that 10 acres of good alfalfa fed to the right kind of stock will make more than a corn bread living for most any of our hill farmers. And if your land is not suited to alfalfa, then try something else. If you have some branch bottom that is inclined to be wet, why not try Johnson grass. I know that it is hated and despised by the corn and cotton growers, once it gets into the cultivated fields it's hard to get rid of, for the more you plow and dig the better your Johnson grass grows, once established all the meadow needs is to plow it up about every second year and sow to oats. I repeat, Johnson grass may be considered an awful pest, but I would rather grow Johnson grass and cattle 40 times over than to try to make a living growing grain and cotton. You can winter cattle on Johnson grass hay. If cut at the proper time it makes tolerable good hay, and the growth and decay of the roots enriches the soil. There is scarcely a farm in the county but what has patches of Johnson grass in the cultivated fields and our farmers have made heroic efforts to get rid of it. But their efforts have been in vain. But as I never saw a bunch of Johnson grass on the outside range, I know if you will let stock on it they will graze it to death. And when you want to kill Johnson grass all you have to do is to make a pasture out of it and turn on the stock. What we need is more hay, more sheep and cattle. And if we can't grow alfalfa try Johnson grass.

The apple crop promises to be immense. Some peach orchards have a fair crop, others almost none, depending altogether on the location.

Buford, Ark. W. A. ERWIN.

Weekly Market Report

Hogs and Sheep Lower—Largest Run of Sheep of the Year—Hogs Receipts Are Only Moderate.

CATTLE—There was a fair supply of beef steers, but a lack of quality. The showing carried a proportion of medium-grade stuff, and while a few loads of good quality were on sale, nothing strictly choice to prime was offered. Market was slow, and inclined to irregularities. The demand was for quality and anything which bore the marks of this requisite sold about steady, with a few strong spots here and there. Medium grades, however, were slow sellers and could not be placed at satisfactory prices according to the selling side. Most of the medium grades sold a flat dime lower and were rather slow at the decline.

There was a good demand from butchers and packers for best grades of heifers, and particularly the choice kinds with not too much weight. On these trades it was fully steady selling, and they were active. Medium grades and heavy heifers, especially in the latter case where quality was lacking, movement was slow, and while the bulk sold steady, some sellers reported slight losses. A load of good weight heifers sold for \$8.75, which was extreme top for the day. Cows were in moderate supply, and the market was inclined to be uneven. Most cases sellers reported a good demand and steady to strong prices, but there were cases where medium grade cows were involved that looked weak.

The best grades of stockers and

feeders looked almost steady, but medium to common kinds were a big dime lower and hard to move at the loss. Demand for sheep stuff was also quite narrow, and prices were on a weak basis. Not much improvement in the demand can be looked for until good rains better conditions in the country.

Most of the run came from Texas, but there was a better offering from Southeastern territory than there was last Monday. The Texas steers found a good demand, both order buyers and packers operating. The market was fairly active right from the outset and prices were steady to a shade lower. Most of the steers moved in range of \$6.85@7.65. A couple of loads of Arkansas steers and some canner stuff out of Mississippi and Arkansas made up the big end of the showing from Southeastern territory. There was no change in the market on these grades, as with a good demand they sold steady.

HOGS—The week opened with a right good supply and the market was on a lower basis. Early sales were around 5c lower and the late ones a full dime lower. However, there was a pretty good clearance. It was a sort of dull, irregular trade the entire day, with poor offerings exceedingly poor sale.

Several loads brought \$8.30, which was the top of the market, and but 2½c under the Saturday top. The bulk of the desirable hogs went at \$8.10@8.25, which brings the market back toward the low point last week, which was the lowest time in several months. Southern offerings of all weights were poor sellers, as the buyers were afraid to take any chance on them killing soft.

What hogs were good enough to meet with the approval of the shippers and city butchers and weighing 180 pounds and better, found sale at \$8.22½ and up, while the mixed and plain offerings sold at \$8@8.20, and went largely to the packers, while the rough throwout packers sold mainly at \$7.60@7.85, with some of the roughest at \$7.50. Buyers sorted the rough hogs out pretty close.

Packers were slow to enter the market, so that they received the full benefit of the decline on most all of their purchases; however, they secured a right good number of hogs before the day was over.

Pigs and lights were on a slightly lower basis, also, and those that were not very good found a mean trade. Best lights weighing less than 165 pounds sold at \$8@8.20, fair at \$7.60@8.00, best grades of pigs under 125 pounds at \$7.50@7.90, fair at \$7@7.45 and common kinds at \$6.35@7.00. Some poor grade pigs and lights were unsold at the close.

SHEEP—It was the largest run of the year, as there were in the neighborhood of 15,000 head on sale before the day was over. The arrivals contained a large number of lambs from Tennessee, and there was a lot of spring lambs and a reasonable number of sheep received from Illinois and Missouri and a string of almost 1000 head of western clipped lambs from Missouri.

With so large a supply on sale it was generally supposed that the market would go to pieces, but on the whole it was a good trade, with values but slightly lower. Sheep held steady and the best lambs were

steady, while others were 15@25c lower. Fair to medium lambs sold very irregular, as the buyers were able to secure about as many of the good kinds as they needed, so that the poorer grades had to look around quite a bit for bids that were satisfactory.

Most of the Tennessee lambs sold at one price and that price was \$9.75, the same as at the close of last week; best spring lambs from Illinois and Missouri went at \$9.25 and others that graded as pretty good at \$8.50@9.00 and the fair offerings around \$8, with the culled at \$6.50@7.75, according to fat, more than anything else. The clipped lambs were from the northern part of Missouri, weighed 73 pounds and sold at \$7.75.

HORSES—Chunks, drafters and general good quality types of work horses were the best sellers and these were being taken by eastern purchasers at satisfactory values. The demand from southern states was not strong and these purchasers were showing their usual midsummer weakness and not many orders were placed for these southern animals.

MULES—The good quality types of big mules and miners were the best sellers all the way through and these practically the only kinds that met with anything like satisfactory outlets. The trade at present is in its usual summer's slump; no material change is expected for the next few weeks.

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Immigration figures show that the population of Canada increased during 1913 by the addition of 400,000 new settlers from the United States and Europe. Most of these have gone on farms in Manitoba, Saskatchewan and Alberta.

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The Pig Pen

ATTENTION TO FARROWING SWINE.

By Prof. E. L. Jordan,
Secy. La. Swine Breeders' Assn.

The farrowing season is perhaps the most critical time of the year for swine growers, for it is at this time that the foundation is laid for next fall's pork crop, and it is very evident that unless a good crop of pigs are started off in good shape, there will be but few to sell in the fall. As many of the readers of *Modern Farming* are perhaps for the first time giving the swine industry serious thought as an important source of revenue, a few suggestions on the subject of the management of brood sows and young pigs may be of value.

The vitality of the pigs depends upon the vitality of the mother. It is therefore very important that the brood sows be strong and vigorous and in good flesh at time of farrowing. In fact, she should be in the condition called "big fat." It is true that a sow in this condition is more likely to overlay a larger number of pigs than otherwise, but it is also true that a sow in this condition will have the reserve food stored in her body in the form of fat necessary to manufacture milk to keep the litter growing. A sow in poor flesh will invariably have a litter of runts simply

large. During this last two weeks, there is no better feed than wheat bran or a mixture of bran and shorts.

About a week before the sow is to farrow she should be placed in a farrowing pen and gentled so that she can be approached and the pigs handled without becoming excited. The farrowing pen should be clean and have a wooden floor. It should be light and well protected from the weather. A pen about six feet wide by six to eight feet in length (depending upon the size of the sow) is most satisfactory. All around the sides of this pen, about eight inches from the floor and extending out about eight inches from the wall, is fastened a plank for the purpose of preventing the sow from laying against the wall and crushing the pigs. A very little litter should be scattered over the floor, and this should be cut in short pieces. It is a great mistake to put too much bedding in the pen, as the sow will root it into a pile and often crush the pigs which get entangled in it.

The day before farrowing, the sow should be given a very little bran mash, and the day of farrowing nothing but warm water. At this time the sow is weak and feverish, the blood which served to nourish the pigs before birth is now flowing to the milk glands along the abdomen and these parts are very sore to the touch. The new born pigs do not require but a very little milk at this time. If now the sow is fed all she will eat her fever will be increased and there will

self and nurse her litter as they should be nursed. Never again in the life of the pigs will they make such large gains for the food consumed, and any attempt at economy now will result in undersized and perhaps permanently stunted pigs. Feed the sow, by all means, all she needs and see to it that her ration contains enough mineral matter and muscle-making material to supply the large amounts she is being called upon to give to her young.

When the pigs are 10 weeks old and have learned to eat from the trough it is time to wean them. The best way to wean pigs is to place the sow in a dry lot and cut the feed down to almost nothing. Let the pigs in to nurse about four times the first day, three times the second day, once the third and then skip a day. By this time the milk should be practically stopped. If not, some of the pigs may be let in every other day until there is no danger of ruining the glands.

Never put young pigs in the same feed lot with larger ones, unless some means is provided to allow the pigs of the same size to eat by themselves. This is very easily done by fencing off a part of the feed lot and cutting a hole in the fence just large enough to admit pigs of the desired size. Three or four grades should be provided for in order to make sure that the young things are not being crowded out by the stronger ones. The ration for the growing pigs must contain, as before, an abundance of muscle-making and bone-making ma-

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of Minnists showing that the medicine had proved most beneficial. As a matter of fact the one report received by the department was an unofficial and unsolicited statement sent presumably from the promoters themselves. The department attaches no importance whatsoever to this statement. It has no reason to believe in the efficiency of any proprietary cure for hog cholera and does not recommend any. Under certain conditions it urges farmers to protect their stock with anti-hog-cholera serum, but that is all.

In connection with this attempt it may be said that the medicine, which is now put forward as good for hogs, was advertised some time ago as a means of killing tuberculosis, typhoid and cancer germs, according to an article published in the *Journal of the American Medical Association*. At that time it was asserted that the army was interested in it. As a matter of fact the army was no more interested than the Department of Agriculture is now.

In view of the evidence that the attempt to create this false impression is persistent and widespread, all hog owners are warned to communicate with the United States authorities before accepting as true any statement that the government recommends any treatment other than the serum already mentioned.

The Shepherd

ANGORA GOATS.

Editor *Rural World*:—As I am an Angora goat raiser, I would like to see something in the paper in regard to goat raising. It is a pleasant work and very good paying business. It has always seemed strange to me why mutton goat are selling so cheap. There is no cleaner meat and a nicer animal than the Angora goat. They will eat nothing but clean food and are very choice in their drinking. They will not lay down to sleep on wet ground. They get on a hillside where it is rocky or else stand up all night.

As to range, if you have a brushy pasture you can run one head to the acre. They care nothing for grass, and you can run nearly as many horses and cattle as without them.

They are much healthier than sheep. Sheep will eat all the grass and kill out the roots. I run, last year, 800 goats and 230 sheep on 1900 acres. In the winter I had to feed the sheep, and lost 30 head from poverty. But I never fed a goat all winter, and never did feed any in winter. They are good rustlers and come home at night, while a sheep will lay out until a coyote kills the last one. They have no sense at all. I sold my sheep and never expect to buy another; but want more goats. I would like to correspond with some one in Scott county, Arkansas, in regard to land.

L. C. BRATTON
Noxville, Texas.

DIVIDING THE FLOCK.

The best results are secured if the pullets and cockerels are separated when eight or ten weeks old. The pullets must be kept growing and developed for early laying to bring the most profit. Early hatched pullets should begin laying when five or six months old. Unless the cockerels are of exceptionally fine stock they may be forced and sold as broilers or roasters and will often bring more per head in early summer than they would if kept until autumn. The chicks should be kept growing and developing from birth to sale or maturity to give satisfactory returns.—N. E. Chapman, Poultry Specialist, University Farm, St. Paul.



MONEY-MAKERS.

because she is unable to manufacture sufficient milk for them.

The pregnant sows must be kept away from other hogs to avoid the heavy losses in still born pigs which is sure to result when a large number of hogs are fed and housed together. Her food during the weeks preceding farrowing should be rich in mineral matter for the supply of bone for the young, and should contain an abundance of muscle-making food. There is probably no single food so universally used as a hog food as corn, and there are very few feedstuffs so poor in mineral matter and muscle-making material as corn. Some feed rich in muscle-making and in bone-making ingredients must be added to the corn for the brood sow if good results are to follow. The best single feed for this purpose is probably a high-grade digester tankage. The proportion of corn to tankage should be about 8 parts corn to 1 part of tankage. The digester tankage, which is a specially prepared production for animal consumption, with about 60 per cent protein content, should be dropped out of the ration during the last two weeks before the sow farrows to prevent the pigs becoming too

be an excessive flow of blood to the glands, causing them to become very much inflamed and so sore that the sow cannot endure the nursing of the pigs. If the sow was not fed the mineral matter and muscle-making food she demanded before farrowing, she will have sacrificed this mineral from her own body and will now have a great craving for flesh. This condition, coupled with her already nervous and feverish condition, will usually result in her eating some or all of her pigs. This pig-eating tendency is not confined to any particular breed, and is the fault of the feeder, not the sow.

When the pigs are 24 hours old, the sow should be fed a limited amount of warm bran mash. The allowance is gradually increased as the sow recovers and the pigs demand more milk. When the pigs are a week old the ration may be strengthened with a little corn and tankage and some green food fed in addition. When the pigs are two weeks old the sow and pigs can be turned onto a good pasture where they can gather green food as desired, but it must not be supposed that the sow will be able to gather enough forage to maintain her

material.

From one to three weeks after the pigs are weaned, the sow can be bred. Sows in Louisiana should bring two litters of pigs every year, one in the fall and one in the spring. October and April are the most desirable months for sows to farrow, and January and July are the least desirable for obvious reasons.

UNITED STATES WARNS AGAINST ALLEGED CHOLERA CURES.

Government Has Not Approved Any Treatment Except the Protective Serum.

Evidence of what appears to be a well organized campaign to delude farmers throughout the country into buying an alleged cure for hog cholera, under the impression that this has been investigated and approved by the United States government, has reached the Department of Agriculture. Articles praising this medicine, Benetol by name, are being sent out widespread to newspapers. These articles are so worded that it appears as if the Department of Agriculture had received reports from the state

Colman's Rural World

Founded by Norman J. Colman.

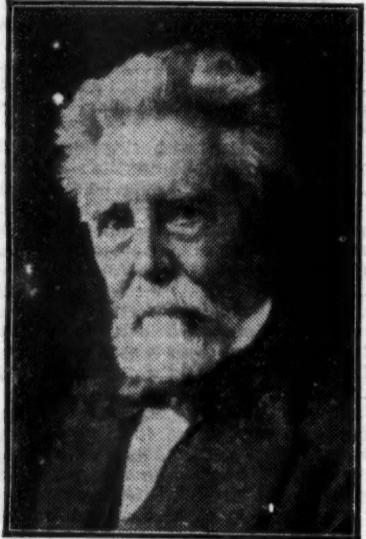
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First U. S. Secretary of Agriculture.

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One of the most important conventions to be held at San Francisco during the Panama-Pacific International Exposition, will be the International Engineering Congress, of which the chairman will be Col. George W. Goethals.

The greatest tulip exhibit ever possible anywhere outside Holland, will be a part of the national exhibit of The Netherlands at the Panama-Pacific International Exposition at San Francisco in 1915. Two acres will be devoted to beds of these gorgeous flowers.

The race track at the west end of the grounds of the Panama-Pacific International Exposition is nearly completed. This track, with a mile course, will be one of the finest in the world. \$227,000 is offered in prizes and awards for the spring and fall race meets to be held on this track.

Mother's work has become a business. She is no longer among the ranks of the unskilled and the unorganized. Mothers' clubs are forming over all the country and courses for mothers are now offered by the University of Wisconsin Extension division. "Housekeeping is a business," says Miss C. E. Binzel, instructor in home economics at the Universi-

ty of Wisconsin, "and if it is to be a success it must be scientifically managed."

The Tower of Jewels, the dominating architectural feature of the Panama-Pacific International Exposition to be held in San Francisco, in 1915, will be covered with hundreds of thousands of iridescent jewels cut from the hardest crystal, and hand polished. These jewels will be hung in such a way that they will tremble and sparkle continually from the natural vibration of the building.

No plant not in full bloom will be allowed to remain upon the grounds of the Panama-Pacific International Exposition at any time throughout the Exposition year, but, according to plans by Director of Landscaping McLaren will be removed in the decline of its blossoming to make way for another in full bloom. The temperate climate of San Francisco will make this continuous procession of blooming flowers throughout the grounds for the entire ten months of the exposition, possible.

Unless farmers are sufficiently interested in farm bureau work to form an effective organization which truly represents the farming interests of the county, there is small chance of the county bureau meeting with great success. It is not enough for professional and business men to interest themselves in the work; the farmers must feel that the bureau is theirs, that it is a means by which they can all co-operate in securing for the community at large every possible benefit, and not an institution for conferring benefits on them individually. A county organization imbued with this spirit is a necessary preliminary to successful work by a county agent.

Two women students will complete the regular four-year course in horticulture at Ohio State University in June. This is the first time in the history of the College of Agriculture that a woman has finished the full course in horticulture. One of the most interesting features of this record is found in the fact that one of the students is Mrs. Helen C. Lovejoy, of Bexley, Ohio, a woman of 50 years, who has carried full school work and kept house for a family of three at the same time. She was graduated from the College of Arts in the same institution in 1884. Three years ago she decided to return and now she has successfully completed her horticultural course.

OWNERSHIP OF GARNERED CROPS.

All crops cease to be real estate and become personal property, writes John B. Green in the April Case and Comment, The Lawyer's Magazine, once they are severed from the soil. Thus a crop grown on a farm exempt as a homestead is exempt also while it remains unharvested, but loses its exemption as soon as it is garnered. And crops grown by one in actual possession of land under a claim of right belong to him if he harvests them before he is ousted by the owner of the true title. The rule, that property severed from the freehold is by the act of severance converted from real into personal property, has been invoked by the courts to bring about the punishment of a thief for larceny instead of trespass. Thus, it has been held that crude turpentine in receptacles formed by cuts in trees to catch it as it exudes, when it is in a state ready to be dipped up, is personal and not real property so as to be the subject of a larceny.

AGRICULTURAL EXTENSION WORK IN HIGH SCHOOLS.

During the past winter and spring the Extension Department of the College of Agriculture, Ohio State University, has given instruction in the high schools of Union, Logan, Wood, Seneca, Medina, Stark, Summit, Washington and Morgan counties. The general plan of the work was for the instructor to visit the high schools which signified their desire for such instruction. The talks were especially adapted to high school pupils. Such subjects as corn or milk were discussed in school hours during the day,

while "Better Home Surroundings" or "Better Schools" were given attention at the night meetings. H. E. Eswine is the instructor for this work. His report shows in an excellent way the success of such meetings. He visited 70 schools at which 135 talks were given. In addition, 35 night meetings were held. The total attendance for both was more than 8,500. At all places, a plea was made for a course of study better fitted to the needs of the country boys and girls. This gave opportunity to say something about the value of the study of agriculture and domestic science.

DEFENDS COUNTRY CHURCH.

"The country church has not ceased to do good. The one-room country school continues to be an important institution." These statements are taken from a recent address made by A. B. Graham of the College of Agriculture at Columbus. "The fact that some country churches are ill attended or abandoned," continues Professor Graham, "must be considered along with the fact that many others are flourishing. Then, too, in many of the farming counties the population has decreased, and thus the churches have lost members through no fault of their own. Furthermore," he says, "in spite of the good being accomplished by our centralized schools there will always remain townships which can be better served by a number of small buildings." These statements came out in an explanation of "Country Life Week," which will be held at Ohio State University, beginning Monday, August 10. The men who are promoting this conference hold that rural social conditions are not bad but that like anything else they can be improved.

AN ANTIDOTE FOR BICHLORID POISONING.

In a recent issue of a prominent medical journal, the statement is made that mercuric chlorid poisoning can be treated by the use of sodium phosphate with excess of sodium bicarbonate. Thus, editorially, the journal says: "This solution, it is claimed, instantly converts the bichlorid to the mild chlorid, which can be removed by a dose of castor oil. It is very necessary that the sodium phosphate shall be chemically pure." Attention should therefore again be called to the fact, says the Journal of American Medical Association, that the names "sodium phosphate" and "sodium phosphite" are so similar that a serious error can be made by the misprinting or misinterpretation of a single letter. Sodium phosphate has been suggested as an antidote to mercuric chlorid because it acts as a reducing agent to convert mercuric chlorid into calomel—mercurous chlorid—while the phosphite is changed to phosphate. Sodium phosphate will have no such action on mercuric chlorid because it is already as highly oxidized as possible.

THE CAUSE AND CONTROL OF CANCER.

It is frequently said that we do not know the cause of cancer. In one sense this is true. What it is that starts the growth of cancer in the body is, as yet, an inscrutable mystery. Years of experimentation and research have not solved this riddle and the disease still remains the foremost problem of medicine.

On the other hand we know much more than is commonly supposed about the "causes" of cancer, if by "causes" we mean "conditioning factors." We know, in some cases almost to a certainty, the combinations of circumstances which result in this disease. A noted authority recently undertook to write a "prescription for cancer." He said that he could name certain states of the body, which, if they occurred together, would be likely to be followed by cancer; for instance, syphilitic subjects with bad teeth, who were confirmed smokers, might reasonably be expected to develop cancer of the tongue. Irritation for a long period in any part of the body may lead to the development of cancer.

While we do not know just why cancer cells set up a growth of their own outside of the law and order of the human body, we can nevertheless describe a great number of conditions under which they have been observed to do so. The influence of racial, local and personal habits on different organs, heredity, the evidence and nature of constitutional predisposition, the influence of chronic infection of wounds and other injuries, and many other factors may be profitably studied in connection with the development of cancer. Incidentally, this is one of the ways in which cancer research hospitals are of value.

It is not necessary to know the ultimate cause of cancer in order to control the death rate from it. We can remedy many of the conditions under which the disease develops by increasing the knowledge as to the facts about cancer. Campaigns of education have as their object the spreading of information about the disease, and pointing out the need of the earliest possible recognition of the symptoms in order that competent medical and surgical advice may be sought in time. The American Society for the Control of Cancer has recently been formed to encourage and direct this kind of educational activity in all parts of the country. The society plans to co-operate with all existing agencies engaged in studying the disease, and to publish in every city, town and village of the country the message of hope which lies in the early recognition and proper treatment of cancer.

PARALYSIS IN HOGS.

Partial or complete paralysis of the hind legs of hogs is seen so often in swine herds that a common cause has been suspected but not definitely determined.

Inbreeding, parasites, and an unbalanced ration, have each in turn been assigned as the probable cause of this particular form of paralysis, and now it is quite generally attributed to a lack of phosphate of lime. This salt in a form that can be appropriated may be deficient in the ration or not properly appropriated by the tissues of the body, or again, it may be because of a drain on the system for phosphates to nourish the growing fetus or the young after birth.

It is a well known fact that there is a deficiency of phosphate of lime in the bones and other tissue of pregnant animals and in those that are suckling their young. This is especially true of the sow. But this condition is not confined to pregnant animals. In one instance a herd of 41 hogs, of both sexes, and ages ranging from 10 months to two years, nearly all of them were affected with partial or complete paralysis of the hind legs. The ration had been largely raw potatoes.

They appeared to suffer no pain, the appetite was quite normal. A balanced ration would probably have prevented this condition. The following treatment has been recommended and should be helpful in these cases: One tablespoonful of cod liver oil, 15 grains phosphate of lime and 3 drops of fluid extract of aux vomica mixed with the food twice a day.—Geo. H. Grover, Colorado Agricultural College.

CORN AND COTTON SHOULD BE HARROWED.

The beneficial effect of a well prepared seed bed and the use of good seed may be wholly or partially offset by improper or insufficient cultivation, is the advice of crop specialists of the Department of Agriculture.

Proper cultivation is an important factor in crop production. Cultivation should begin immediately after planting by running once or twice across the rows with a weeder or section harrow. After the plants come up at least two additional cultivations should be given with either the weeder or harrow in the case of either corn or cotton before the regular cultivators are used. Run diagonally across the rows with either of these implements, using the section harrow with the teeth slanted backward with an angle of 45 degrees and repeat a week later at right angles with the first cultivation.

The use of the weeder or section harrow is strongly advised for the early cultivation of corn, cotton and many other crops. It is best to use the weeder on very loose or sandy soils while the section harrow is preferable on clay or buckshot soils. This early cultivation with the weeder or harrow destroys all young grass and weeds and leaves the soil in fine condition and the cotton ready for chopping or thinning. The use of the section harrow for the early cultivation of corn and cotton in the South is comparatively recent, but is rapidly becoming general. One of the great advantages in its use, in addition to the excellent work done, is the extra amount of land that can be cultivated in a given time.

GOOD ROADS.

The federal government spends \$20,000,000 annually to exterminate insect and animal pests, yet not a dollar is spent in studying the human pest—the criminal." This statement was made by Roland Molyneux at a conference on a proposed "Federal Office of Prisons," held by the National Committee on Prison Labor at the home of Mrs. John H. Flagler in New York. Mr. Molyneux contends that as great results would follow the scientific study of the criminal as attend the research conducted by the Department of Agriculture.

Dr. Frank Moore confirmed this contention by his personal experience as superintendent of the New Jersey reformatory. He referred to a study he had conducted as to the causes which bring young men into the reformatory. Of 350 men received at the institution in one year about 70 per cent were from indigent families where poverty was very great and where the first lesson in crime had been given by the mother who had suggested that her son go out and procure fuel; 60 per cent of the prisoners were from illiterate families where the child had even been encouraged by the parents to avoid the truant officer; 50 per cent were from broken families, death or divorce having broken up the home; again, it can be seen on the cause of the punishment after birth. That there are 5 years. The problem of the mentally deficient was later discussed by Mrs. Bodman, who urged the need for special study of the relation of mental deficiency and crime.

The beneficial results obtained by study of the prisoner were brought out strongly by Dr. Moore, who cited instances of boys who in the reformatory had received training adapted to their individual needs and who upon release had proved themselves valuable members of the community.

The growing need that an office be established to undertake study of the federal prisoners was pointed out by George Gordon Battle, who held that owing to the increasing duties of the Department of Justice which at present controls the federal prisons and the increasing number of federal prisoners, it is impossible for this department to do justice to these prisoners.

John Manning, who represented organized labor at the conference, stated that the workingmen of the country were behind this movement for the federal office of prisons, as through the office could be worked out intelligent methods of employing the prisoner, largely out of doors, on roads and farms. "The prisoner should receive pay for this labor," declared Mr. Manning, "and at the end of his sentence he should come back into society, feeling that he has paid his debt to society and society its obligation to him."

Other speakers urged the need for better sanitation in the prisons and for broad study into the cause of crime, while in bringing the discussion to a close, Dr. E. Stagg Whitin made clear that the federal office would have power of investigation into every penal institution wherein a federal prisoner is or has been confined. This will turn the limelight practically every jail, prison and penitentiary in the United States, and once conditions are fully known reform will surely follow.



33-PIECE DINNER SET AND 41 EXTRA ARTICLES **FREE**

DESCRIPTION SEND NO MONEY-- 41 EXTRA GIFTS

We have given a great many of these dinner sets to readers of our big farm paper. But we are not satisfied—we want to distribute a great many more of these magnificent 33-piece dinner sets—and you can have a set if you only make up your mind to read this announcement. These are not ordinary premium dishes—they are made of pure white ware that will last for years with ordinary care. It only requires a few minutes every now and then, and this magnificent set of dishes belongs to you.

The Complete Set Consists of:
6 large plates.
6 teacups.
6 saucers.
6 butter patties.
6 fruit or cereal dishes.
1 deep vegetable dish.
1 large meat platter.
1 large cake or bread plate.

Every piece in this large 33-piece dinner set is of high grade material, perfectly white, and large enough to please the most particular housekeeper.

The design on each piece is made to our special order and the red roses with the green foliage is so real that they seem to only lack their natural fragrance. The edge of each piece is finished with solid gold trimmings—the kind that positively won't wear off. Our dishes are prepared by a secret process, the delicate enamel finish on each dish will not graze or get streaky when washed. Indeed, your dishes will be just as white and clear in a year from now as they are the day you receive them, provided you take ordinary care of them.

If you could buy these dishes from your local dealer they would cost you so much money you probably would feel you could not afford them. But they are not for sale—they are made to our exclusive order by the best known pottery in America, the Owen China Company of Minerva, Ohio, and each dish bears the trade-mark of the Owen China Company, thus guaranteeing them to be genuine Owen Chinaware. You will find Owen Chinaware for sale in only the best stores—but our special rose design is made only for our big family of friends and subscribers.

Be the first person in your neighborhood to get a set of these magnificent dishes. Sign the coupon below, right now, and mail it to me today, and I will send you one of our large sample needle cases, containing 115 of the very best needles in all useful sizes. We will also send you a picture of the dinner set showing the dishes in all their brilliancy and handsome coloring.

Every woman needs needles, and when your neighbors see this splendid great big needle case, they will want one just like yours. If they like it, tell them that they can have one of these large needle cases if they will hand you 25 cents in connection with a SPECIAL OFFER which I will write you about when you sign the coupon.

You won't have a bit of trouble in getting 16 of your neighbors and friends to accept this special offer, and after you have collected 25 cents from each of them the set of dishes is yours forever. You can do this favor for us during your spare time. The children can help you and they will be glad to do so. Hundreds of successful dish earners have earned their dishes the same day they received their needle cases.

Write your name on the coupon below, right now—and mail it to us tonight, quick—and you will receive our easy plan by return mail which will tell you all about our wonderful dinner set and 41 extra gifts, which we give for promptness.

You have nothing to lose—but everything to gain. I take all the risks and trust you with the needle cases, because I know after you get my complete outfit and see the beautiful colored picture of the dishes, just as they will look when you take them out of the box as the lady is doing above, you will be as anxious to get a set as she was and equally as pleased. You will be surprised, astonished, at the ease with which you can earn this dinner set.

The first thing to do is to send me your name on the coupon and the whole outfit, including needles, colored picture of dishes, full instructions for getting the dishes and 41 beautiful extra gifts, will be sent you by return mail, so you won't have to lose any time in getting started.

The 33-piece dinner set alone will more than repay you for the little favor I ask of you, but we are going to give you a splendid set of 40 beautiful high-class souvenir post cards printed in many colors (no trash) as an extra inducement for you to be prompt. Even though you don't complete your dinner set order the 40 post cards are yours.

But that's not all by any means—we have an extra surprise gift that we will pack with your dishes, and which you will know nothing about until you receive them and open your crate—just like the woman above is doing. This surprise gift is a beauty—something every woman will go into raptures over. I'll tell you more about it when you send me your name.

You take no chances in signing the coupon, because, if you get sick or for any other reason fail to earn the dishes, we will pay you well for what needles you dispose of.

I also include with each set of dishes my plan for paying the freight charges on the dishes. My whole plan is so simple and will take up so little of your time that you can't fail to earn a set of these dishes if you only make up your mind to do so, and sign the coupon below.

Remember, the coupon starts everything—sign it right now—quick.

MAIL THIS COUPON TODAY

Colman's Rural World,
St. Louis, Mo.

I want to get a 33-piece dinner set and the 41 extra gifts. Send me the sample needle case, picture of the dishes in color, and tell me all about your big offer. It is understood I am placed under no obligation in signing this coupon.

Name

P. O.

R. F. D. State

COLMAN'S RURAL WORLD,
Saint Louis, Missouri.

Home Circle

THE AUTOGRAPH OF GOD.

By Aunt Samantha.
He writes His name in nature,
On everything you see;
It shines forth from every flower,
From every shrub and tree.

You'll find it in the forests,
And on the goldenrod;
Whose every bud and blossom
Shows the handiwork of God.

On the hills and in the valleys,
And the bright, blue sky above,
You'll find His name there written
That proclaims that "God is Love."

His name is written in heaven,
Upon the great white throne,
Where He is crowned the "King of
Kings,"
And by the angels known.

His name He writes over all the
earth,
And in the seas beneath;
And to all believing children
He will His name bequeath.

His signature is everywhere
Where mortal man may dwell;
And the power of His presence
No human tongue can tell.

Yes, His name is written in heaven,
With a spotless record fair;
And all who live their lives aright,
Their names are written there.

SECRETS OF THE DIVINE MIND.

Editor Rural World:—To most astronomers the study of the starry heavens would be dull and uninteresting were we to suppose that the universe consists merely of a boundless mass of matter without animation, thought or intelligence. In such a case or condition, creation would appear a vast, mysterious, and inexplicable system, and we would be unable to trace the designs of the Creator for bringing it into existence. The perfections and purposes of the Divinity would be veiled in utter darkness and mystery. The grand end for which the fabric of universal nature was reared was that it should serve as a scene of enjoyment to innumerable intellectual beings susceptible of appreciating the beneficence of their Maker, and that they might behold a magnificent display of the grandeur of His eternal attributes. Wherever matter exists we may be certain that it was created for a useful purpose, and the most useful purpose that we can conceive of for its construction is that it was created for an abiding place for intellectual intelligences. Among the orbs comprising the planetary system there are numerous devices and contrivances that display the wisdom of the Great Architect of all worlds. There is plenty of evidence to prove that those worlds have been beautifully decorated and adorned to become the dwelling places of myriads of superior intelligences. The exquisite mechanism and wise contrivances and arrangements that the telescope reveals upon those wonderful worlds, Jupiter and Saturn, is a strong indication that those worlds were expressly fitted up to become the abodes of exalted intelligences of a far higher order than those of our terrestrial system.

But I want to write now of some of the wonders connected with new creations, new stars, lost stars, and perhaps variable stars, but I will have to be brief, as space is valuable. There is much that is marvelous among the movements of such anomalous bodies as those mentioned above. In regard to lost stars, it certainly is a very strange circumstance that a star that has been twinkling and shining with a vivid light for at least 20 centuries, perhaps a very much longer time, should then suddenly or gradually disappear, never more to return. Our ablest scientists and deepest thinkers have for many decades been theorizing and framing hypotheses for the solution of such abstruse problems, but the question is too difficult for solution by finite beings, and will probably always remain one of the secrets of the Di-

vine Mind. In the case of stars of this kind which have totally disappeared, it has been conjectured by some that such worlds have not been annihilated, but that they have been transported to distant regions of space by some unknown and powerful agency, where time shall be no more to the inhabitants of such a world, and where all accounts will be squared up, at the commencement of a new existence. Let us imagine that such a fate should befall our world, and that as we moved out into space, the other planets gradually disappeared, and the apparent diameter of the sun slowly diminished, and the solar light began to fade away, and, at length total darkness prevailed. What awful consternation would then take place among earth's frail creatures. But after a long and swift journey our little world would come within the attraction of some other bright luminary, around which it would revolve and all would be well again, after the long ride through the ethereal regions.

There have been so many exquisite improvements made in the last few decades in our telescopes, micrometers, and other astronomical instruments, that in case a new star should appear we would be better fitted to study its phenomena than formerly. During the last half of the seventeenth century a new star appeared and after shining for a while it became invisible, and then reappeared, and after undergoing several singular fluctuations of light during two years, gradually vanished away, and has never returned. A prominent long period variable star has been observed to continue in full luster for five years, when it decreases rapidly in brilliancy for two years, and then becomes invisible to the naked eye for four years, when it reappears and increases slowly in brightness during seven years. This star passes through all the gradations of light and magnitude from a star of the third magnitude to the seventh, in about 18 years. At maximum there is much variation in brilliancy. Most variables do not often return to the same degree of brightness, nor increase and diminish by the same gradations. Some of these changeable stars have periods of only a few hours, or a few days. The period, or time which elapses from one diminution to the other is often several months, or a few years. Some stars are suspected of being variables, and as reliable observers are not numerous it may be some time before we learn as to their true character.

Some people might think it a small matter that some stars should be more brilliant at one time than another, but when we take into consideration the fact that such orbs are found to have no sensible parallax, and consequently that their distance from the earth is absolutely immeasurable by human art, we may then conclude that this distance is infinitely great, and if so, they must be of enormous dimensions, many of them probably far surpassing the sun in magnitude. What mighty conflagrations then, we may imagine, take place at times on those wonderful bodies. What awful scenes would become visible, could we view them at a distance of a few million of miles. Besides this theory that great conflagrations take place on those distant orbs, others have indulged in theoretical speculations of a different nature, which perhaps have a fairer degree of plausibility than the first mentioned one.

J. M. MILLER.

CONTENTED DISPOSITION.

Editor Rural World:—I was thinking of late how important it was to be blessed with a contented disposition as its value is far greater than that of gold and silver. By contentment we don't mean easy-going and carelessness, but after doing our best to be satisfied with what Providence has enabled us to obtain. This past month I attended my niece's wedding and the total gifts and cost of wedding amounted to \$35,000, which really delighted me, but no doubt many or a few would feel sad that they could not fare as well. If we rejoice over what our friends receive it seems that their cup of blessing runs over and we get a portion. I remem-

ber last summer when my youngest brother at Niagara Falls was sent for to go over to London to preach two months. How I cried for joy upon reading his letter and when my sister wrote she received a check for \$250 as a prize for best efforts, I also cried for joy, just because I was glad—that's all.

Contentment.

Are you looking out for riches,
And the things that rich and fair?
It is found in fullest measure,
And 'tis in the balmy air.
Don't you hear that birdie singing?
In that yonder maple tree?
And a lesson it is bringing;
One that any one can see.
Yes, contentment's like a garden
That is full of pretty flowers;
All the world is our possessions;
Yes, the world is really ours.
Keeps us all from growing older
When the heart is satisfied;
We've a fortress strong and mighty
With contentment on our side;
Ah, contentment brings us riches,
And 'tis measured not by gold;
In life's network strong the stitches
of contentment and 'twill hold.

ALBERT E. VASSAR.

AIR VS. EXERCISE.

One great difference between outdoor air and indoor air is that the first circulates freely, and the second is stagnant. Another difference is that floods of sunshine constantly cleanse outdoor air of its impurities, but most rooms get very little of that useful commodity. Many persons who visit the physician with complaints of poor digestion and anaemia, declare that they are active all day long, and that going out for walks is the last thing they need.

They may be right about the amount of exercise they get, but people constantly fall sick in spite of plenty of exercise in the house, and get well again with a little outdoor exercise. A certain amount of active work about a house is good for every one, but there ought to be some daily outdoor life as well.

It does not follow that outdoor life ought to include violent exercise, or even any exercise at all. Why should the house mother be told that she cannot keep well unless she dresses up in walking clothes and takes a long walk after a fatiguing morning of physical labor in the house? Tired people should do their resting in the open air. There are very few days in the year when a person who is warmly wrapped up cannot sit with comfort in a sheltered sunny corner. Everyone knows how babies thrive when they take their naps outdoors; the principle applies to the adult also.

It is a matter of scientific record that people whose daily occupation obliges them to sit in the open air—such as market women, attendants at fruit stands and newspaper sellers—are robust people, who do not take cold easily. Yet it is probable that few people take less exercise.

Let it be understood that this is not an argument against physical exercise. That is not only excellent, but in most cases necessary. But you need not forego both air and exercise because you cannot conveniently have both; open air life without exercise is much more healthful than indoor life with it.—Youth's Companion.

NOTES FROM EGYPT.

Editor Rural World: Lest I seem to imitate, I have concluded to change my "headline." Of course, everybody knows where Egypt is, and we leave it to the editor to tell why it is so called.

This is May 24 and we are very dry. Oats will be very near a failure, even if we have rain soon; and meadows will be very short. Considerable corn to plant and ground so dry that little can be done.

We have 10 acres to plant, and it is in fine tilth with plenty of moisture, but we have waited a little, hoping to tide it over our usual dry spell in August.

Then we are plowing 10 acres of rye sown for pasture, and unlike Mr. Lyons, it plows fine. But this reminds me of a story. Two Irishmen were ordered to do penance by walking a

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Will pay Reliable Man or Woman \$12.50 to distribute 100 FREE pkgs. Perfumed Box Soap Powder among friends. No money required. D. WARD COMPANY, 214 Institute Pl., Chicago.

New 1914 Thin Model 20 Year Watch \$3.75
Elegantly engraved, gold finished double hunting case, high grade American lever movement, stem wind and stem set. 20 year guarantee sent with each. Long gold twisted chain for ladies, fish or vest chain for men. \$3.75

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certain distance with so many peas in their shoes. Mike at once filled his shoes and hobbled off. When almost to the end Pat came walking gaily along, and when questioned, said, "I took the liberty to boil my peas."

Now, we boiled our peas by double disking first. A neighbor remarked that there is nothing better for land than to plow under rye. I told him I would much prefer so much dry straw. Another said he does not believe our land needs lime; thus putting his judgment against that of Dr. Hopkins, Frank Mann, et al. It is said that "He who does not know, and does not know that he does not know, is lost."

May 28. Still dry and warm. Our state had only about 75 per cent of normal rainfall from March 1 to May 4, and our immediate neighborhood, much less.

We paid \$3 today for stock peas and \$1.50 for German millet. Millet is poor feed, but "a drowning man will catch at a straw," even a straw of millet.

AGRICOLA.

Jack pine trees planted 10 years ago in the sand hills of Nebraska are now large enough to produce fence posts. Last year the first seed was gathered from this plantation.

MISSOURI COMMISSION PLANS ARE ACCEPTED.

Work on State Structure at Panama Exposition Soon to Begin—Each Commissioner to Superintend a Class of Exhibits.

The plan of the Missouri Commission, Panama-Pacific International Exposition, to be held in San Francisco in 1915, for their state building, have been approved by the exposition officials and the work of construction will soon begin.

The Missouri Building will occupy one of the most imposing and choice sites on the exposition grounds. The site is 200 by 403 feet and fronts on San Francisco Bay. The building will be 64 by 120 feet. It will contain a reception hall 40 by 80 feet which will jointly serve as an auditorium, hall room, and reception hall. There will be installed in this part of the building a stage adequate for lectures, entertainments, etc. At one end of the building will be a moving picture apparatus. This will be used to show the resources and scenes of Missouri.

Approval of the plans of the Missouri Commission at this early date means that Missouri will have one of the finest state buildings on the grounds and that its resources, products, advancement in literature and art and its future possibilities will be

more amply displayed than those of any other state in the Union.

The exterior of the Missouri building will be attractive in the extreme and of colonial style. A balcony will run around the entire inside structure. The second floor will be fitted with apartments. Ample rest rooms will be provided. The building itself will cost about \$46,000 and will be a thing of pride to all Missourians who visit the exposition.

Governor Elliott W. Major is taking a personal interest in the exposition. He is mindful of the fact that 35,000 former Missourians now reside in California and still take a deep interest in the affairs and achievements of their native state. He realizes that these former residents are watching and waiting for a chance to boost their native state.

The Missouri building will be entirely for social, educational, entertainment and boosting purposes. In order that the greatest of the great commonwealth may be displayed in all its phases to the best advantage the members of the Missouri Commission have decided that the exhibits of the state, which will be aside from the building, will be shown under five classes. Each member of the commission will superintend a separate department.

Commissioner John L. McNatt of Aurora will have in charge the mines and metallurgy exhibit; Commission-

er Norman M. Vaughn, 1420 Syndicate Trust Building, St. Louis, education and art; John A. Cunningham, Caruthersville, agriculture; W. A. Dallmeyer, Jefferson City, live stock and poultry, and W. D. Smith, Princeton, horticulture. All those interested in either class of exhibits are requested to correspond with the commissioner who has charge of the particular class in which the interest centers.

Governor Major and the members of the commission are especially desirous that the things in which the state surpasses all other commonwealths be amply portrayed in its exhibits. In this connection it is cited that Missouri produces more cotton than Virginia, more corn than Kansas, has the largest lead and zinc production of the world, largest raw fur market in the world, has the largest poultry industry, has one county in southeast portion of the state that grows more cotton to the acre than anywhere else on earth, has the largest nurseries in the world, more mules than any other state in the Union and that it surpasses in many other things of which its citizens are proud.

The Panama-Pacific International Exposition will be in celebration of the greatest human achievement of all times, the completion of the Panama Canal. The gates of the exposition will open to the public on February 20th, 1915, and it will remain open until December 4th. The site is wondrous in its scenic beauties and will be visited by hundreds of thousands of people from all over the world.

more can usually build up a profitable trade in dressed poultry by a little effort, selling his stock direct to the consumers. Thus no division of the profits is made, and the producer is the gainer of several cents a pound. Still better profits may be realized if the poultryman will cater to the well-to-do people who wish only the best in the market and are willing to pay a good price for the choicest of stock.

SHEAR SHEEP BEFORE TURNING TO GRASS.

It is the wise flockmaster who shears and trims his sheep before pasturing them upon new, succulent spring grass. Inexperienced shepherds are often deluded into turning their charges out to pasture in late April or early May without first trimming their feet and shearing off the winter's growth of wool. They do this because some one has told them that more yolk will form in the fleece, making it heavier and better.

According to Frank Kleinheinz, shepherd of the flocks at the College of Agriculture, University of Wisconsin, the sheep lose far more in weight during the first warm spring days in pasture than the slight increase in yolk in the wool amounts to. Then, too, the fresh grass acts as a laxative which results in dirty fleece, making shearing unpleasant. On the whole it will be found good economy to shear the sheep early in the season and thus obtain cleaner wool and put the flock in better shape for summer. The importance of trimming the feet of sheep at this period must not be overlooked as crooked hoofs, broken down pasterns, and foot-rot are liable to occur if proper attention is not given to the sheep before allowing them to run upon damp spring grass.

PATTERNS FOR RURAL WORLD READERS.

In ordering patterns for Waists, give bust measure only; for Skirts, give waist measure only; for children give age only; while for patterns for aprons say, large, small or medium.

9961—Ladies' Tunics.

Cut in 5 sizes: 22, 24, 26, 28 and 30 inches waist measure. It requires $\frac{1}{4}$ yards of 24-inch material for No. 1, $\frac{1}{2}$ yards for No. 2, and $\frac{1}{4}$ yards for No. 3, with $\frac{1}{4}$ yards for ruffles in No. 1 for a 24-inch size.

9962—Ladies' Waist With or Without Chemisette and Bolero.

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. It requires $\frac{1}{4}$ yards of 27-inch material for the waist, and $\frac{1}{2}$ yards for the bolero, for a 38-inch size.

9963—Ladies' Bathing Suit With Bloomers.

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. It requires $\frac{1}{4}$ yards of 27-inch material for a 36-inch size.

9964—Ladies' Apron.

Cut in 3 sizes: Small, medium and large. It requires $\frac{1}{4}$ yards of 36-inch material for a medium size.

9965—Girls' Middy Suit With Dickey.

Cut in 4 sizes: 8, 10, 12 and 14 years. It requires 5 yards of 27-inch material for a 10-year size.

9966—Girls' Dress With Guimpe.

Cut in 4 sizes: 4, 6, 8 and 10 years. It requires $\frac{1}{4}$ yards of 36-inch material for the guimpe, and $\frac{1}{2}$ yards for the dress, for a 6-year size.

9967—Ladies' Dress.

Cut in 5 sizes: 34, 36, 38, 40 and 42 inches bust measure. It requires $\frac{1}{2}$ yards of 44-inch material for a 36-inch size.

9968—Ladies' House Dress.

Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches bust measure. It requires $\frac{1}{2}$ yards of 36-inch material for a 38-inch size.

These patterns will be sent to RURAL WORLD subscribers for 10 cents each (silver or stamps).

If you want more than one pattern, add 10 cents for each additional pattern desired.

Fill out this coupon and send it to COLMAN'S RURAL WORLD, 716 Lucas Ave., St. Louis, Mo.:

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HUSTLING man under 50 years wanted in each locality. To join this society and introduce our new memberships. Part or full time—\$50.00 to \$500.00 monthly. Experience not required. Address, The I-L-U 2021, Covington, Ky.

FARMS AND LANDS.

FARMS, ranches in Texas, Okla., Ark., Mo., Colorado direct from owners. To buy, sell or trade. Land Buyers Guide, McKinney, Tex.

FORCED TO SELL \$20 acres, 3 miles from R. R. town, smooth, rich, good grass and crop land. Joins free open range and lake. \$50.00 per a. Write for full description, owner, S. S. Sanger, Brandon, Colo.

750 ACRES in Pennington County, close to Black Hills. One of the best small cattle or sheep ranches in the state. Plenty of timber for protection in winter. Running water and good outside range for summer use. Also a school section fenced which can be rented adjoining ranch. 450 acre bottom land, one-half of which is in alfalfa, balance can be put in and irrigated. 150 acres level upland can be farmed. Balance broken which is good pasture. R. H. Robertson, Creston, S. D.

LIVE STOCK.

GUERNSEY BULLS for sale—Two full blood, not eligible to registry; one yearling, good, \$80; one 8 months, \$55. H. Vroman, Verona, Wis.

BIG TYPE Poland-Chinas, of the largest and most prolific breeding. Write today for what you want. Highland Stock Farm, Piggott, Ark.

BIG TYPE Poland-China pigs, sired by a son of Cooper's big Bant, 1 others by Postage Stamp, \$5.012. Priced to sell. Wm. Campbell & Son, Pinckneyville, Ill., R. D. 5.

FOR SALE—A good farm, 100 cattle, 40 sheep, registered Berkshire hogs of very best breeding; separately or together; Angora goats. W. Grey Ellis, Florence, Miss.

FOR SALE—Some choice Guernseys. The premium 4-year-old bull Roy of Oakwood. Some bred heifers and an extra nice lot of male calves. W. Henry Bell & Son, Scotts Station, Ky.

POULTRY.

HOUDANS, ANCONAS, Single Comb Brown Leghorn eggs. Reasonable. S. Durand, Millersville, Ill.

FOR SALE—Full-blooded Mammoth Feeding ducks. Eggs \$1.00 per setting. Mrs. A. Brower, Rinehart, Mo.

BUFF O. EGGS for sale; pen headed by Prince, a son of \$150.00 imported cock, Sturble, O. farm, Bascom, Ohio. \$5.00 eggs for \$3.00 rest of season. Mrs. Clara Barber, Corbin, Kan.

HANLY'S FANCY PLYMOUTH ROCKS, Barred, White and Buff. Winners wherever shown. I have some of the best I ever raised, birds I could sell easily at \$50.00 each. Eggs, pullet mating. Pen 1 \$5.00 per 15; Pen 2, pullet mating, \$2.50 per 15; Pen 3, cock mating, \$8.50 per 15; 60 per cent guaranteed fertile or duplicate the order at half price. Eggs half price after May 15. J. H. Hanly, Monticello, Mo.

SEED AND NURSERY STOCK.

SWEET CLOVER SEED—Pure white and large biennial yellow. Prices and circular sent on request. Bokhara Seed Co., Box D, Poughkeepsie, Ky.

SPLENDID OPPORTUNITIES to representatives everywhere to sell trees and plants; experience unnecessary; liberal terms; outfit free. Cash weekly. Devote part, or all time. Write for particulars. Fayetteville Nurseries, Dept. 21, Fayetteville, Ark.

PETERITA—Pamphlet giving experience with this drought-resisting grain and forage crop. Will mature after oats or wheat crop. Pure, high-testing received seed \$2.75 single bu.; \$2.50 in two bu. lots; sacks free. H. M. Hill, Lafontaine, Kan., R. 1.

AGENTS.

1,000 AGENTS wanted at once, to sell the Imperial Self-heating Iron; men or women; salary or commission; \$15.00 to \$20.00 per day profits; experience unnecessary; sells at sight. Imperial Sad Iron Co., Memphis, Tenn.

MISCELLANEOUS.

MAGAZINES, 50c worth for 10c, postpaid, good ones, too. Emory G. Pharr, Sycamore, Ga.

WANTED—To buy 5,000 mink and foxes. \$1.00 to \$5.00 each. Beechhurst Co., Shelbyville, Ky.

Horseman

Branham Baughman, 2:04 1/4, is named through the Canadian Circuit in the 2:10 classes.

The Fairmount, Ind., track is in fine condition and the trainers are riding some fast quarters over it.

Electric Maiden, 2:12, and Joan of Arc, 2:15 1/4, recent purchases of John L. Snyder, Springfield, Ohio, will be bred to Binjolla, 2:17 1/4.

Wentworth, 2:04 1/4, which obtained his record in 1905 and was a member of the E. E. Smathers stable, is still racing in England.

Beth Clark, 2:05 1/4, one of the fast record pacers to profit by the new eligibility rule, is being liberally named in slow pacing classes.

Trainer Joseph Rising has moved from near Chestertown, Md., to Punxsutawney, Pa., with nine head, including the pacer, Pony Boy, 2:17 1/4.

A half-sister of the fast pacer, Peter Stevens, 2:09 1/4, was lately purchased by Henry Harding of Barton, Vt., from G. M. Stevens, of Lancaster, N. H.

Baron Jolla, a 3-year-old son of Binjolla, 2:17 1/4, lately purchased by E. D. Gould, of Kearney, Neb., now reigns at the head of the latter's breeding farm.

The former Indiana pacer, Mac Thisle, 2:04 1/4, was lately purchased by T. H. Curley, of Webster, Mass., and it is said will be raced in fast classes at Eastern meetings.

The pacing stallion, Joe McGregor, 2:14 1/4, worked a mile in 2:07 before leaving California for the Canadian Circuit. He is in the stable of James Stewart, of Los Angeles.

E. J. Maire, owner of the Maple Lane Farm, Lima, Ohio, is going to sell all of his horses, including the Mobeis that Joe Gahagan has been preparing for the 1914 campaign.

John Burns has two promising green

trotters at Dufferin Park, Toronto, Canada, in Opera Todd by Kentucky Todd, 2:08 1/4, and Princess Ouida, by Walnut Hall, 2:08 1/4.

Judging from the way that early closing classes at Cranwood Park were patronized it is bound to be a big year for Al Pennock at the Cleveland course over which he presides.

Henry Titer has in training at Readville the pacers, Colonel Patch, 2:17 1/4; Little Helen, 2:19 1/4; King Bogash, 2:20 1/4, besides some green material that has showed lots of promise.

Bizzy Izzy, 2:13 1/4, by Escobar, 2:13 1/4, recently foaled a fine filly by Sorrento Todd, 2:11, and has been bred to Bergen, 2:06 1/4. Bizzy Izzy is owned by C. D. Bell, of Council Grove, Kan.

The Exponent, 2:11 1/4, in the stud at Maple Lawn Farm, L. E. Brown, proprietor, Delavan, Ill., has already been bred to a splendid lot of record and producing mares and his books is nearly full.

Jack London, 2:07 1/4, now owned by Dr. J. H. Carmichael, of Springfield, Mass., will race in a match on Memorial Day at Springfield the trotter, Ambrose C., that is credited with a trial of 2:08 1/4.

Peacock & Biggs have 17 head of trotters and pacers in training at Chestertown, Md. The stable includes the record pacers, Rowdy Boy, 2:12 1/4, Barnetta B., 2:13 1/4, and Princess March, 2:14 1/4.

THE MAN WITH THE MARE.

The man with the mare determines the kind of horse offered on the markets. On him rests the choice of breeding stock. The mare he fancies is the one assigned the duty of raising colts, and the stallion he chooses to patronize is allowed the privilege of perpetuating his type, says Breeders' Gazette.

The heterogeneous aggregation of horses finding an outlet in trade channels represents the various ideas entertained by American farmers regarding excellence in horses. It would seem that the continued exploitation of the big powerful horse by agricultural journals and draft horse shows, as well as the high market prices,

would result in making the small chunk unpopular in the country. But farmers at this very time are buying small draft-bred mares for shipment from markets back to the country. These are bought mainly by those to whom the first cost is more important than ultimate returns. Frequently it happens that good big young mares get entirely away from the country and breeding opportunities because of this dime-saving and dollar-losing policy. The horse market sets the price for a big mare, and if a farmer will not pay it a shipper will. When one determines to buy a draft mare for farm work and breeding he might as well recognize that he will not get something for nothing, and that a good mare will be worth as good a price to him as to anyone else.

It takes a big mare to produce big horses, and certainly she is worth her price for work and breeding if she or a gelding like her is worth a similar figure for work alone. The man with the mare has an advantage over everyone else in the horse business; he gets the double return on his investment. In buying a mare one must figure on producing a colt that will be wanted by someone else if not needed at home. Fortunately, that is the same big active powerful sort that will do the most farm work. It has been the general experience that money spent for good farm mares has been well invested. Let the farmer who is short of teams consider the future.

START THE HORSES EASY.

Do you know how much time it takes to get a work horse in shape for steady field work after being idle during the winter months?

Three weeks is the minimum, according to James G. Fuller of the College of Agriculture, University of Wisconsin.

"Whatever the type of work to be done, do not put him into hard work without preparation," said Mr. Fuller in speaking of the rations which should be fed to work horses in spring. After being kept over winter on a maintenance ration consisting of corn stover, hay straw and a limited amount of grain, work horses should be placed gradually on a ration of energy producing feeds.

Regular care and intelligent feeding are the essential features in successfully handling the work horse. If possible, give him a drink the first thing in the morning, and follow this with the grain ration and a limited amount of hay. Let him have another drink on the way out of the stable to work, and, if not too warm on entering the stable at noon, and again at night.

"A variety of feed is important to the hard worked horse. A grain mixture of nine parts of oats and one part of bran, by weight, is an excellent combination. The horse should be fed from four to seven quarts of this mixture three times a day, the amount depending upon the size of the horse and the character of his work. In addition, two or three ears of corn can be fed. On idle days the ration should be cut down about one-third in bulk and the grain mixture changed to seven parts of oats and three parts of bran with but little or no corn.

"It pays to use the curry comb and brush. The work horse is never groomed too much. As far as possible all dirt should be removed from the inner side of the harness and the collar. At the beginning of the season the shoulders will be toughened by being bathed each evening with cold water. Farm work horses need not be shod except during the dry warm weather, but their feet should be rounded by means of a rasp and kept from splitting or getting out of shape."

THOROUGHBRED AND TROTTER.

In the last Sunday edition of the New York Herald, the trotting editor of that great daily published several interesting interviews he recently had with a number of well known horse dealers of the metropolis regarding the merits of the trotting bred horse and the thoroughbred in a race of 20 miles under saddle, and, from the article in question, it is evident that opinion was about equally divided as to which breed would prove the best.

"SHOEING HORSES"

This book is out of print, no more copies can be issued. Those on hand are for sale at \$1.00 per copy, mailed postage paid. Book is copyrighted.

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ter in such a test, says American Cullivator.

In view of the fact that the trotter holds all of the records, so far as we are aware, from five miles to 100 miles, we are led to the belief that the thoroughbred would not be able to hold his own with a great trotter after half of the 20 miles had been traveled, and were it not for the fact that such an event would probably prove one against which the Society for the Prevention of Cruelty to Animals would have just cause for action, we should like to see the test made, which, to say the least, would be interesting.

As to the relative gaits—the trot and the canter—it would seem that the former might be the less tiring to a horse over a 20, or even a 10 mile journey, and that would really be the main issue in a long distance race of this character.

The mile record for a thoroughbred over a circular course is about 22 seconds lower than the 1:58 of our champion trotter, Uhlan, but the trotter has been trained for so many years to race mile heats, best three in five, while dashes of distances greater than one mile are not very common with the runners, that we would expect to see the thoroughbred wear himself out early in the contest, while the plodding trotter would be able to keep up a good average clip mile after mile.

H. H. Weatherly, who has had much experience in long distance races, is now at Barton, Vt., preparing a trotter by Direct, 2:05 1-3, to travel under saddle from that point to Springfield, Ill., and is very confident that the horse is capable of making the trip without any great hardship, and to maintain an average of about 60 miles per day. Doubtless Mr. Weatherly would be pleased to have a champion of the thoroughbred keep him company. Such an event would prove of extreme interest to the entire horse world, and, at the same time, would help to decide the question as to which breed of horse is the better in a long distance contest.

MANY VALUABLE PRESENTS FREE

In the next three months we want to give away \$10,000 worth of useful and valuable presents to advertise the People's Supply Company. We want at least one person in every town to have one or more of these splendid presents, and we want the good friends and readers of Colman's Rural World to be the first to have their choice. These presents consist of Watches, Rings, Fountain Pens, Lockets, Cameras, Suits, etc. Look over the list and carefully read the description of each and see what you prefer. We only have room to show you a few of the many presents you may select from.

Our offer makes it so easy to get one or more of these useful presents that every boy or girl, man or woman reader of Colman's Rural World should sign the coupon below. All we want you to do is distribute 20 of our swell Art and Religious pictures amongst your friends and neighbors at 10 cents each. These beautiful pictures are 12x16 inches in size, and lithographed in many beautiful colors. Nearly everybody you show these pictures to will thank you for the opportunity of getting one or more at 10 cents each. As soon as you have distributed the 20 pictures, send us the \$2.00 you will have collected and we will send you your choice of any one of the presents you select from our big list of premiums.



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BRACELET AND RING

Adjustable to any size wrist and gold plated throughout, and the fancy engraved links alternating with plain polished ones produce a very pleasing effect. Ornamented with elaborate, fine cut, sparkling ruby stone, set in richly chased border. Three-stone gold plated ring given with each bracelet.

Don't send any money. Just fill out the coupon below and mail it to us, and we will send you, by mail, all charges prepaid, the 20 beautiful pictures.

You run no risk as we take back any you do not sell, and send you a present for what you have sold. Fill out the coupon below and mail it today. The coupon starts everything.

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NOTICE!

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PEARL FOUNTAIN PEN



The barrel is a genuine guaranteed hard rubber; cap is of the same material. The barrel is inlaid with mother of pearl decorations and you can see the beautiful design from the illustration. The inlaid work is held in place by two fancy gold plate bands; pen point is guaranteed 14K solid gold, and in every respect this fountain pen is first class.

Camera Outfit



This Camera outfit includes camera with automatic shutter, plates, developing tins, developer and fixer and full instructions. Will take clear and sharp pictures. Covered with moroccoette.

Vanity Case

Made of rich German Silver which has an extra finish, and is decorated with fancy flower border. This case has a mirror of good quality, and powder puff compartment and places for quarters, dimes and nickels, also a strong catch that will hold cards and bills. Attached to this Vanity Case is a ten-inch chain. Size of case is $3\frac{1}{2} \times 2\frac{1}{2}$.



BOYS! GET THIS RIFLE FREE!



Will Shoot 350 Times

AUTOMATIC REPEATER
Works Like a WINCHESTER

all kinds of small game, such as squirrels, rabbits, etc. Barrel and all working parts made of high-grade steel, handsomely nickel plated; stock of finely-polished black walnut. This splendid Rifle is just what you need for target practice. No powder—no danger—yet it will shoot almost as hard and as far as a regular .22 caliber cartridge rifle. It is the safest and most powerful air rifle ever invented.

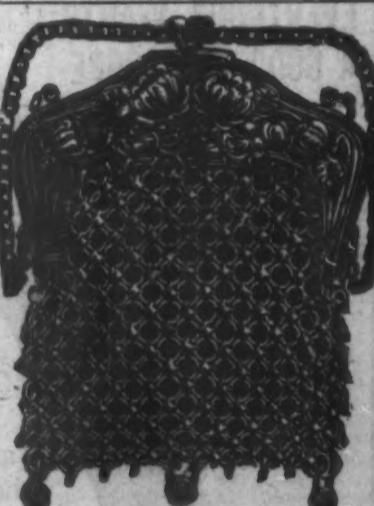
Handbag

Made of seal grain with gusseted ends welted, heavy cloth lining, fitted with pockets for mirror, bottle, coin purse, etc. Bag measures $10\frac{1}{4} \times 8\frac{1}{4}$ inches and is fitted with fancy French gray silver finished frame, has a double strap handle.



CASH COMMISSION

Many of our agents prefer to sell our goods for a cash commission instead of a premium. We allow 40 per cent commission to agents who desire the money instead of the premium. In other words, you keep 80 cents out of every two dollars' worth of goods you sell, and send us the remaining \$1.20. If you find you cannot sell all our goods you will be entitled to a commission on the full amount you do sell.



Mesh Bag

Made of German silver, beautiful oxidized frame, prettily embossed with a handsome floral design. The size of the bag is $3\frac{1}{2} \times 2\frac{1}{2}$, which makes it neither bulky or too small. Attached to it is a ten-inch chain.

SEND NO MONEY—JUST YOUR NAME.

People's Supply Co.,
716-718 Lucas Ave., St. Louis, Mo.

Gentlemen:—Send me 20 packages of your high-grade art and religious pictures, which I promise to try and sell for one of your presents. I promise to return all pictures I cannot sell.

Name

R. F. D. Box Street

Post Office State

Ladies'
or
Gentle-
men's
Watch



A picture (reverse side reproduced) of our American made late model Watch.

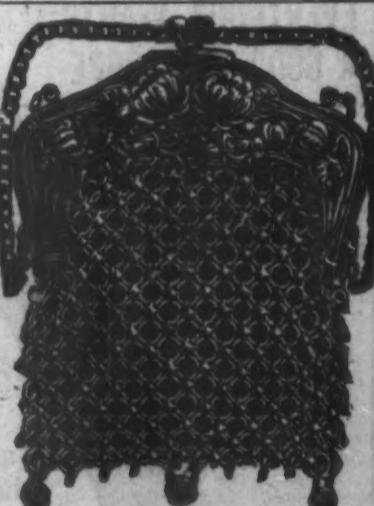
American Model, stem-wind and stem set, suitable for a lady, gentleman, boy or girl. Case is embossed with a beautiful and chaste design, and presents a rich and elegant appearance. Attractive easy reading dial, with hour, minute and second hands, and is dust proof.



Gold Filled
Ring
Set With
Three
Brilliant
Stones

Locket, Chain and Ring

Hand engraved. Crescent design set with eight extra quality brilliant white stones. Locket is suspended from a 22-inch chain, and will hold two pictures. With each locket and chain we also will give an extra gift of one gold-filled ring set with 3 brilliants.



Mesh Bag

Made of German silver, beautiful oxidized frame, prettily embossed with a handsome floral design. The size of the bag is $3\frac{1}{2} \times 2\frac{1}{2}$, which makes it neither bulky or too small. Attached to it is a ten-inch chain.

3½ Foot Telescope ALMOST FREE

THERE are a thousand uses for this instrument in every home and on every farm or ranch. You can see what your neighbors are doing who live miles away from you. It will bring the remotest part of your farm to your door. You can tell who is in a carriage long before they reach you. You can view and count stock on distant parts of your farm or ranch.

POSITIVELY such a good telescope was never offered in such a liberal manner before. These telescopes are made by one of the largest manufacturers of Europe; measure closed, 12 inches, and open over 3½ feet in five sections. They are brass bound, brass safety cap on each end to exclude dust, etc., with powerful lenses, scientifically ground and adjusted. Guaranteed by the maker. Everyone living in the country should have one of these instruments. Objects miles away are brought to view with astonishing clearness.

Used as a microscope it is found of infinite value in discovering microbes and germs in plants, and seeds, etc.

Heretofore telescopes of this size with solar eyepiece and multi-focal lenses, have sold for \$8 to \$10, or even more. We do not claim our telescope is as nice and expensive in every particular of construction as a \$10 telescope should be; that would be unreasonable; but it is a positive wonder for the price. Each telescope is provided with 2 interchangeable objective lenses—one for ordinary range and hazy atmosphere, the other for extra long range in clear atmosphere, increasing the power and utility of Telescope about 50 per cent.

Can Count Cattle Nearly 20 Miles Away.

F. S. Patton, Kansas, says: "Can count cattle nearly 20 miles away. Can see large ranch 17 miles east, and can tell colors and count windows in the house."

Saw an Eclipse of Sun.

L. S. Henry, The Saxon, New York, writes: "Your Solar eyepiece is a great thing, I witnessed the eclipse at the Austrian Tyrol when the sun was almost 80 per cent concealed."

Could See Sun Spots.

Rutland, Vt., Feb. 16, 1910.—Telescope arrived O. K. I have seen the spots on the sun for the first time in my life.—Dan C. Safford.

**EVERYBODY WANTS
A GOOD TELESCOPE**



REMEMBER
this offer
is limited
Act
quickly

**Colman's
Rural World**
718 Lucas Avenue,
ST. LOUIS, - - MO.

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amounted to \$500 in the year, would receive \$25 in cash for his patronage. Those whose patronage amounted to \$1,000 would receive \$50, etc., provided nothing shall be paid back to any one until he has four shares, the limit. Pay him shares instead, and increase the capital of the exchange. Pay non-members as much for their produce as members and sell them as cheaply, but give them no part of the bonus per cent until they become members and stockholders. The exchange will handle every member's produce and merchandise at actual cost, giving back all profit. It will make a difference between members and non-members. You tick the farmers into line and keep them in line. You bid for members, stockholders and for patronage. You bring a large volume of trade together to one center, which reduces expenses and insures success. You knock out the profit system which is a robber system and introduce the co-operative system, which is the salvation of the farmers and all wealth producers. The directors shall not declare not over 4 per cent dividends on the stock subscribed.

GRASS.

Editor Rural World:—As civilization advances it places individual and collective responsibility of the grass. The grass today that grows along the lane and street belongs to the public, to beautify the thoroughfares. The western grazing land of old is owned and controlled by the American farmer. As population becomes more dense the grass must be utilized to more intense use to mankind.

There was a time that grass was for all those, just for the asking—but no more; the grass farmer has become a specialist, for the grass must be left under a grass specialist—one who knows how to feed the teeming millions from the grass.

The greater the population the greater we are in need of direct from producer to consumer.

The Farmers' Equity Union is doing more along this line than any organization in this country.

VIRGIL WIRT,
Virden, Ill.

THE GEM OF OUR AGRICULTURAL LITERATURE.

Ingalls on Grass.

"Next in importance to the divine profusion of water, light and air—those three physical facts which render existence possible—may be reckoned the universal beneficence of grass. Laying in the sunshine among the buttercups and dandelions of May, scarcely higher in intelligence than those minute tenants of that mimic wilderness, our earliest recollections of grass. And when the fitful fever is ended, and the foolish wrangle of the market and the forum is closed, grass heals over the scar which our descent into the bosom of the earth has made, and the carpet of the infant becomes the blanket of the dead.

"Grass is the forgiveness of Nature—her constant benediction. Fields trampled with battle, saturated with blood, torn with the ruts of cannon, grow green again with grass, and carnage is forgotten. Streets abounding by traffic becomes grass-grown, like rural lanes, and are obliterated. Forest decay, harvest perish, flowers vanish, but grass is immortal.

"Beleaguered by the sullen host of winter, it withdraws into the impregnable fortress of its subterranean vitality and emerges upon the solicitation of spring. Sown by the winds, by wandering birds, propagated by the subtle horticulture of the elements, which are its ministers and servants, it softens the rude outlines of the world. It evades the solitude of deserts, climbs the inaccessible slopes and pinnacles of mountains, and modifies the history, character and destiny of nations. Unobtrusive and patient, it has immortal vigor and aggression. Banished from the thoroughfare and fields, it bides its time to return, and when vigilance is relaxed or the dynasty has perished it silently resumes the throne from which it has been expelled, but which it never abdicates. It bears no blemish of bloom to charm the sense with fragrance or splendor, but its

homely hue is more enchanting than the lily or the rose. It yields no fruit in earth or air, yet should its harvest fail for a single year famine would depopulate the world."

PRODUCERS AND CONSUMERS MUST UNITE IN EQUITY.

The December report of the Agricultural Department at Washington gives some very interesting facts and statements for both producers and consumers of farm products. According to this report the cash income of the farmers is \$5,847,000,000 per year. In the 6,000,000 farmers' families there are at least 20,000,000 laborers earning their bread in the sweat of their face and their income, besides board, is less than \$300 per year for each individual. This is the average. So more than 1,000,000 must receive much less than this amount.

The report from the department says: "However desirable increased production on farms may appear to be from the consumers' standpoint, it does not follow that such increased production would result in any increase in the cash income per farm or per capita of farm population or that prices paid by consumers would be any lower."

Had the total production in 1913 equaled or exceeded the 1912 production it seems probable that the cash income per farm would not have been greater and might have been less than in 1912; but it is extremely doubtful whether the cost to the consumer would have been less, because retail prices were promptly raised on a prospect of under-production, but are very slow to decline if there is over-production.

The long line of distributors and middlemen between the farmer and the consumer are in a position to take advantage of the market and to a certain extent control the market, in both directions, because they are better organized to keep informed of crop and market conditions and to act more promptly than either farmers or consumers, who are not organized and as individuals are helpless.

The high prices paid by consumers, ranging from 5 to 500 per cent in some cases more than the farmer receives, indicate that there is plenty of room for lowering the cost of farm products to consumers, and at the same time largely increasing the cash income per farm without increasing farm production.

This condition is undoubtedly a marketing problem which will have to be solved by better organizations of farmers and improved methods of marketing. When, as the result, of such organization and improved methods, the price of farm products can be maintained at a higher level, without increasing the cost to consumers, farmers will be justified in increasing the output of their farms with a fair prospect of realizing reasonable pay for time, labor and capital, which in the aggregate is enormous."

These statements are all included in the December report from our Agricultural Department at Washington, and indicate the progressive thought of the people as reflected from our national government.

We are informed that this condition is a marketing problem which will have to be solved by better organization of farmers and improved methods of marketing. This is the very problem which is being slowly but surely solved by the Farmers' Equity Union.

We are working hard to build up 50 equity exchanges around Kansas City, Kan. They must each have the loyal support of 100 good farmers. They must be organized on the Equity Union plan of Golden Rule co-operation so they will stay organized and keep united. Each exchange must have at least \$10,000 invested in warehouse, coal sheds, elevator and some money in the bank for capital. There must be a continued campaign of education by lectures, literature, a weekly paper teaching co-operation and monthly meetings so our members will be loyal to their own exchanges.

We unite the best farmers at each market and keep them united. We are doing this wherever we are strongly organized.

Now as we build up these country Union Exchange,

FARMERS EQUITY UNION COAL

Blackbrier—Highgrade
Cantine—Semi-Highgrade

From our Illinois mines—New used by many branches of the Farmers' Equity Union in the different States.

Reference: Mr. C. O. Drayton, National President Farmers' Equity Union. For prices, freight rates and any desired information, write to us.

LUMAGHI COAL COMPANY
606 Equitable Building, St. Louis, Mo.
SHIPMENTS ANYWHERE.

markets and equip them, we must organize the Equity Union consumers in Kansas City, Kan. They will be members of the Union and will take stock with the country exchanges in Kansas City Equity Exchange. Consumers' shares will be \$10 each; limited to one share. Five dollars in cash must be paid on each share before benefits can be realized. The other five need not be paid in cash but will come to the stockholder in his patronage dividend.

This central exchange will handle Equity Union milk, cream, butter, eggs, poultry, fruit, vegetables, honey, meat, flour, etc. The exchange will buy and sell for cash; buy and sell at the market price; but every member will be given credit for what he buys or sells. At the end of each year there is a settlement. Out of the gross earnings the board of directors will take the expenses, each member's dues, \$1 and 5 per cent stock dividend if it is made.

The directors can never declare over 5 per cent dividends on the stock subscribed. All over this is net earnings and is prorated back to stockholders according to the amount of patronage furnished by each.

The net earnings are figured as a per cent of the entire business furnished by the stockholders. We will buy and sell just as the system does, on a safe margin. We will not boost the price on farm produce when we buy it nor cut prices when we sell, but we will work for a larger volume of trade centered in one channel, for economical distribution by organizing streets as solidly as possible, and prorate as large a patronage dividend as possible to all stockholders who are patrons.

This will bring producer and consumer face to face in the economic world. It will hold them together. The cash patronage dividend will hold their patronage together. A 5 per cent patronage dividend will hold them, but the system has made such an extreme difference between producers' prices and consumers' prices that we will be able to pay back at least 10 per cent for patronage if we get a large volume of trade and good honest management. The extreme difference between producers and consumers' prices will help us in holding our members and gaining others.

Then a farmer who sells the exchange \$1,000 worth of produce will get the market price when he sells and \$100 more on the annual settlement day. The consumer who buys \$1,000 worth will receive back \$100 for his patronage, and will be sure to come again and bring some of his neighbors.

The producer and consumer divide the \$200 profit and make Mr. Profit-Taker hunt another job. We are entering the wedge that will split the profit system which now robs the millions of wealth producers. We want 10,000 consumers in Kansas City, Kan., to join the Consumers' Equity Union and read our Equity Union Exchange weekly.

Send 50¢ to the Equity Union Publishing Co., and we will send you The Equity Union Exchange for one year, and read weekly what this Union is doing in 10 states.—C. O. Drayton, Greenville, Ill., in Farmers' Equity

Fish Bite like hungry wrens any time if you use our Wonderful Fish-Luring Bait. Best Fish Bait known. Keeps you busy pulling them out. Write to-day and get a box to help introduce it. Agents wanted. Watson Supply Co., Decatur, Ill., St. Louis, Mo.

BEES
It pays to keep bees right and raise your own honey. Send today for Free catalog of Bee Supplies and sample copy of the AMERICAN BEE JOURNAL, oldest bee paper in America and for indispensable to the beekeeper. Dadant & Sons, Box L, Hamilton, Ill.

OZARK DEVELOPMENT.

The Department of Development of the Frisco Railroad reports that for the six months ending April 1st, 2,324 farmers were located along their lines; these farmers brought with them 1,997 cars of farm equipment; these new-comers purchased 223,765 acres of land or an area of 521 square miles.

It is interesting to note the large percentage of this development has taken place in the Ozark section of Missouri, which, according to the figures of the Department of Development, has received almost 50 per cent of the total immigration coming on to the railroad. The actual figures are as follows:

1,389 farmers were located who brought with them 934 cars of farm equipment. These farmers purchased and are now occupying 148,215 acres of land or 231 square miles of Ozark territory.

This development has been carried on without the usual home-seekers rush or excitement. The present policy of the Frisco is to actually develop its agricultural territory by assisting the communities along its lines in bringing in farmers of a class that are equipped to develop it; men who would be assets to the community and increase the production of the soil.

The Agricultural Branch of the Department of Development of the Frisco is engaged not only with these new-comers, but with farmers already on the land, in employing such methods as will bring maximum production and profits.

The local bankers are engaged with the Frisco in this work, and, as recently stated by President Clarke of the Ozark Bankers' Development Committee, there are nearly 1,200 bank officials in the Ozarks engaged with the railroads and the farmers in actually developing the agricultural resources of the Ozarks. It is this work which has been and is so systematically carried on in the Ozarks, that has attracted such a large number of farmers to it.

BAITING FLY TRAPS.

The bait is an important factor. It has been found that bread and milk is most attractive under ordinary conditions. It should be recycled frequently and not allowed to dry up. One experimenter has recently claimed that buttermilk is even better than bread and milk as a bait. If there is anything in the immediate vicinity of the trap more attractive than the bait used, the more attractive material should be made use of. We have found tainted meat more attractive than bread and milk.—F. L. Washburn, Entomologist, University Farm, St. Paul.

Lowest Prices Ever Made On World's Best Roofing

**Lightning-proof, Fire-proof, Rust-proof,
Rot-proof, Galvanized Steel Roofing—
Lasts as Long as the Building Stands**

That's the kind of roof you want to invest your money in, isn't it?

All roofing you have ever bought heretofore had three cost prices—the first cost per square laid on the roof—the cost per year for up-keep—the cost of property damage by leaks. Here then, is *real* roofing economy.

Once you have purchased and laid Edwards Tightcote Galvanized Steel Roofing your roofing expense for that building is at an end for all time.

Its cost per square is the lowest ever made. It has *no* up-keep cost. Its property protection is absolute. Its years of service, as long as the building stands. Always beautiful in appearance. *Guaranteed Fire-proof, and Lightning-Proof. Reducing the cost of your fire insurance.*

EDWARDS Exclusive Tightcote Process

Makes Rust-Proof Roofing

The Edwards process of galvanizing makes the zinc spelter practically one piece with the steel. No ordinary galvanizing can compare with it. Each and every *Edwards Metal Shingle, Metal Spanish Tile, each sheet of Edwards Reo Steel Shingles, Grip Lock Roofing, Pressed Standing Seam or Roll Roofing* is dipped in a bath of molten zinc, one at a time after the metal has been stamped and resquared. This insures a uniformity. The edges are galvanized as heavily as the sides. Not the space of a pin-point on the steel is exposed to the rain, snow, frost, acids or anything that eats or destroys a steel roof.

How to Test Galvanizing

Take a piece of any other galvanized steel, bend it back and forth several times, hammering it down each time. You will then be able to flake off great scales of the galvanizing with the finger nail. Apply this test to a piece of *Edwards Tightcote Galvanized Steel Roofing*—you'll find no flaking—not a space on the metal the size of a pin-point exposed to rust.

EDWARDS Patent Interlocking Device

Prevents Warping, Buckling or Breaking—Protects Nail Holes—They Can't Leak or Rust

This device not only takes care of expansion and contraction so that an EDWARDS Steel Roof never warps, buckles or breaks, but it is so designed that nails are driven through the *under* layer of metal only—nail holes are protected from exposure—cannot rust. No special tools or experience needed to lay it—anyone can do the work—lay over old shingles if you wish.

Reo Steel Shingles

cost less—outwears three ordinary roofs and are your joy and pride forever. A most beautiful roof.

No matter what kind of a building you have in mind there is a style of *EDWARDS Tightcote Galvanized Roofing* exactly suited to your needs. We manufacture and sell all of the many patterns of Edwards Reo Steel Shingles, V-Crimped, Corrugated, Standing Seam Roofing, Siding, Ceiling, etc., painted or galvanized, and all other kinds of the best grade of sheet metal building material.

Freight Paid Factory Prices

This is positively the greatest roofing proposition ever made. You can't afford to neglect investigation. All we ask is a chance to prove to you that we do indeed offer the lowest prices ever made on the world's best steel roofing. Won't you write today for our freight prepaid price and be convinced. We are the largest manufacturers of Iron and Steel Roofing in the world. We sell direct to you from the largest, most modern sheet metal plant in existence. We save you all in-between middlemen's profits. Because of our immense purchasing power of raw materials—our wonderful manufacturing facilities and enormous output, our prices are rock bottom. We prepay freight and give you a binding guarantee against lightning losses.

FREE—Our Big Roofing Book—FREE

No matter whether your building is a corn-crib, barn, shed or mansion. Don't for an instant consider investing your money in roofing of any kind until you have received our Roofing Book, illustrating and describing every conceivable kind of Sheet Metal Roofing and Building Material—special offer and free samples of Steel Roofing. Postal or coupon brings FREE copy of Roofing Book No. 6395

**The Edwards Manufacturing Co.,
6345-6395 Pike Street, Cincinnati, Ohio**

We simply want the right to prove to you that our prices are really the lowest ever made on the World's Best Roofing. We have no salesmen or agents but send you the proof which cannot be disputed free and by mail prepaid.

Note construction of Edwards Patent Interlocking Device—no nail holes exposed to the weather.

**World's
Greatest
Roofing
Book**

**Mail
Coupon
Now**

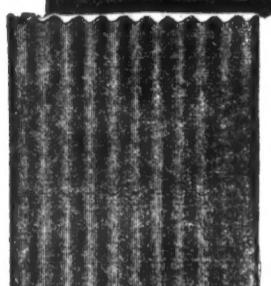
**THE EDWARDS MFG. CO.
6345-6395 Pike St., Cincinnati, O.**

Please send me free samples, latest freight prepaid prices and a free copy of your World's Greatest Roofing Book No. 6395

Name.....

Town.....

R. F. D.



Corrugated



Edwards "Grip Lock" Patented



Brick Siding



Rock Face Siding



Many patterns for
Surfaces, Corners
and Pilasters

Ornamental
Ceiling and Siding

Largest
Makers of
Sheet Metal
Building
Material in
the World

Ventilator
for Barn

**Edwards \$49.50
Fireproof
Steel Garage**

If you want a garage that won't rot, rust or burn—a building that's attractive, yet practically indestructible, here it is. An "Edwards" Ready-Made Fire-Proof Steel Garage. Affords perfect protection with least possible investment. Quickly set up any place. Direct-from-factory-prices—\$49.50 and up. Postal brings 64-page handsomely illustrated catalog.

